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The primary objective of this project was to produce a suggested plan for promoting and guiding the development and expansion of occupational education in Oregon high schools and community colleges. To achieve the major objective, special task force groups were assembled to work on specific aspects of the total project: labor market data, curriculum articulation, curriculum coordination, and open enrollment relations. Task force reports on labor market data and on curriculum articulation are included in this document. The task force groups included representatives from high schools, community colleges, the Oregon Board of Education, Oregon State University, and the State Employment Service. The plan must ultimately provide for articulation of occupational preparatory curriculums from the senior high school to specialized vocational-technical preparation in the community colleges; for coordination and distribution of occupational preparatory curriculums among community colleges; and for operation of student services that promote effective development of human resources and efficient utilization of physical resources. (CH)

ED031570

# AN APPROACH TO THE ARTICULATION AND COORDINATION OF OCCUPATIONAL PREPARATORY CURRICULUMS FROM THE HIGH SCHOOL THROUGH THE COMMUNITY COLLEGE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PROJECT

OPC $\frac{\text{Artic}}{\text{Coord}}$ HS-CC

A project combining the joint efforts of:

The Oregon Board of Education
The State System of Higher Education
Local K-12 School Districts
Oregon Community Colleges
The Oregon Department [illegible] Employment

December 16, 1968

VT008719 (Part 1 of 3)

# PREFACE

The purpose of this paper if to present a brief overview of the present status and the projected developments of the Articulation-Coordination Project. The paper is presented in four sections. The first outlines the mission of occupational education and lists some challenges which must be considered in occupational education curriculum development. The second summarizes the project's objectives, plan of operation, and organizational structure. The third reviews the progress to this date including project activities, cooperative activities with other agencies and significant developments. The fourth section is a listing of those individuals who have had major involvement in project activities. Numerous other individuals have also contributed much time and effort to the project.

We would like to acknowledge the exemplary cooperation and assistance which has been provided by all agencies, organizations, and individuals concerned with this project. The effort which has been committed to this mutual thrust for the improvement of occupational education is gratefully appreciated. The Articulation-Coordination Project has truly become a joint effort of all segments of the educational community. Special mention should be made of the efforts of State Superintendent Dale Parnell who last year as president of the Oregon Community College Administrators group fostered this type of project and of James W. Sherburne, Vice Chancellor for Continuing Education, whose assistance has expedited the project's implementation.

Darrell L. Ward, Project Director
Division of Continuing Education
Oregon State System of Higher
Education

Wm. G. Loomis, Asst. Supt.
Division of Community Colleges
and Vocational Education
Oregon Board of Education

# AN APPROACH TO THE ARTICULATION AND COORDINATION OF OCCUPATIONAL PREPARATORY CURRICULUMS FROM THE HIGH SCHOOL THROUGH THE COMMUNITY COLLEGE

The number of occupational preparatory curriculum, by title, now offered in Oregon's 12 community colleges is approaching a total of 190. These curriculums represent more than 60 different occupational groupings. Additionally, some 40 new curriculums representing eight new occupational areas are being developed for initial offering in 1968. In 1967 student enrollments in occupational preparatory programs in the community colleges totaled 5,087 FTE*. By 1975 it is projected that these FTE enrollments will have swollen to at least 15,000. Moreover, by 1975 it is anticipated that secondary occupational education programs will graduate annually some 40,000 seniors, many of whom will seek to continue their occupational preparation in post-high school institutions. To provide for the needs of this growing student population, it will be essential, at both educational levels, to introduce additional occupational curriculums, as well as to expand and extend existing ones.

The development and implementation of these added or expanded curricular offerings present a challenge that is both urgent and complex.

Effective means for directing the growth of existing and the development of new curriculums, both for high schools and community colleges, is imperative. Appropriate decision-making data regarding the needs of our human resource and the labor market must be assimilated into curriculum patterns which will provide articulation of occupational preparatory curriculums from the high school to the community college and which will provide for coordination of occupational preparatory curriculums between community colleges.

## SECTION I

### Mission and Challenge

The enduring mission of occupational education has been defined as follows:

> "To educate youth and adults to achieve a productive and purposeful relationship to the world of work that is personally satisfying and in keeping with democratic values."**

To accomplish its mission occupational education in Oregon schools must be greatly expanded, extended and improved. Articulated programs of optimum curricular offerings must be provided all Oregon youth and adults.

---

* Includes both preparatory and adult extension education. An FTE (full-time equivalency) is based on a student load of 20 clock hours per week in class or laboratory. More than 45,000 individuals will make up the 15,000 FTE in 1975.

** State Advisory Council for Vocational Education (Position Statement). The Challenge of Change and the Role of Occupational Education in Oregon. Salem: State Department of Education, March 1968. p. 13.

Some major challenges to be met can be briefly stated as:

1. Acceptance as a basic concept that the development of articulated programs must be cyclical in nature, evolving from a common base of curriculum development data and continually returning to an updated base for revitalization.

2. The referral to curriculum planners of appropriate data regarding human resources and labor market needs in a systematic and continuous manner is essential.

3. The development of elements of a master plan for occupational education in Oregon which would provide for

    a. Articulated programs from the kindergarten through the university with appropriate allocation of the occupational education function to the various levels of the system, while at the same time insuring local autonomy and control.

    b. The allocation and coordination of community college curriculums which will optimize offerings and make the wisest possible use of our human and economic resource while at the same time providing for local needs, pride and orientation of programs.

4. The provision of student services which will assist enrollment of all Oregon citizens in curriculums offered in only one or a limited number of community colleges and facilitate free movement of students between institutions.

5. The free flow of communications between the educational community, the human resource and the labor market to insure relevant education and re-education of youth and adults.

# SECTION II

## The Articulation and Coordination Project

### Project Plan

A Project to Facilitate the Articulation and Coordination
of Occupational Preparatory Curriculum from the High School
Through the Community College

### Objective

The primary objective of the total project is to produce a suggested plan for promoting and guiding the development and expansion of occupational education in Oregon high schools and community colleges. Such a plan must ultimately provide for articulation of occupational preparatory curriculums from the senior high school to specialized vocational-technical preparation in the community college; for coordination and distribution of occupational preparatory curriculums among community colleges; and for operation of student services that promote effective development of human resources and efficient utilization of physical resources.

### Plan of Operation

To achieve the major objective outlined, special task force groups have been designated and assigned to work on specified aspects of the total project. The task force groups are under the program direction of the Oregon Board of Education, Division of Community Colleges and Vocational Education; and their work is coordinated and assisted by contracted staff in the Division of Continuing Education.

The target date for completion of the project is June 30, 1969, with a full preliminary report made available by January 1.

### Cooperating Groups:

The resources of concerned organizations and agencies will be brought together in a concerted effort to meet this project's objectives. (See organizational chart for listing of groups involved.) Representatives of these organizations and agencies make up the project advisory committee and will provide guidance for this project through the State Director of Vocational Education, Oregon Board of Education.

### Task Forces:

Activities identified as necessary for completion and implementation of this project will be assigned to various task force groups. Four task force groups have been established with representatives from high schools, community colleges, the Oregon Board of Education, Oregon State University, and the State Employment

Service. The following general objectives have been delineated:

Task Force I - Labor Market Data

(1) To collect and provide current and projected data regarding human resource and labor market needs.

(2) To identify gaps and weaknesses and suggest ways of improving data collection and presentation.

(3) To suggest an approach to utilizing data in the selection and evaluation of occupational education curriculums.

Task Force II - Curriculum Articulation

(1) To collect, organize and analyze data of existing and proposed occupational programs in high schools and community colleges.

(2) To prepare a rationale for articulating occupational programs which will be useful in educational planning.

(3) To prepare a suggested plan of action for implementing the rationale and recommendations.

Task Force III - Curriculum Coordination

(1) To develop criteria which will be useful in directing the expansion of and the growth of new curriculums.

(2) To develop and implement procedure for using the criteria in the distribution and direction of curriculum growth and expansion.

(3) To develop guidelines for the coordination and use of state advisory committees.

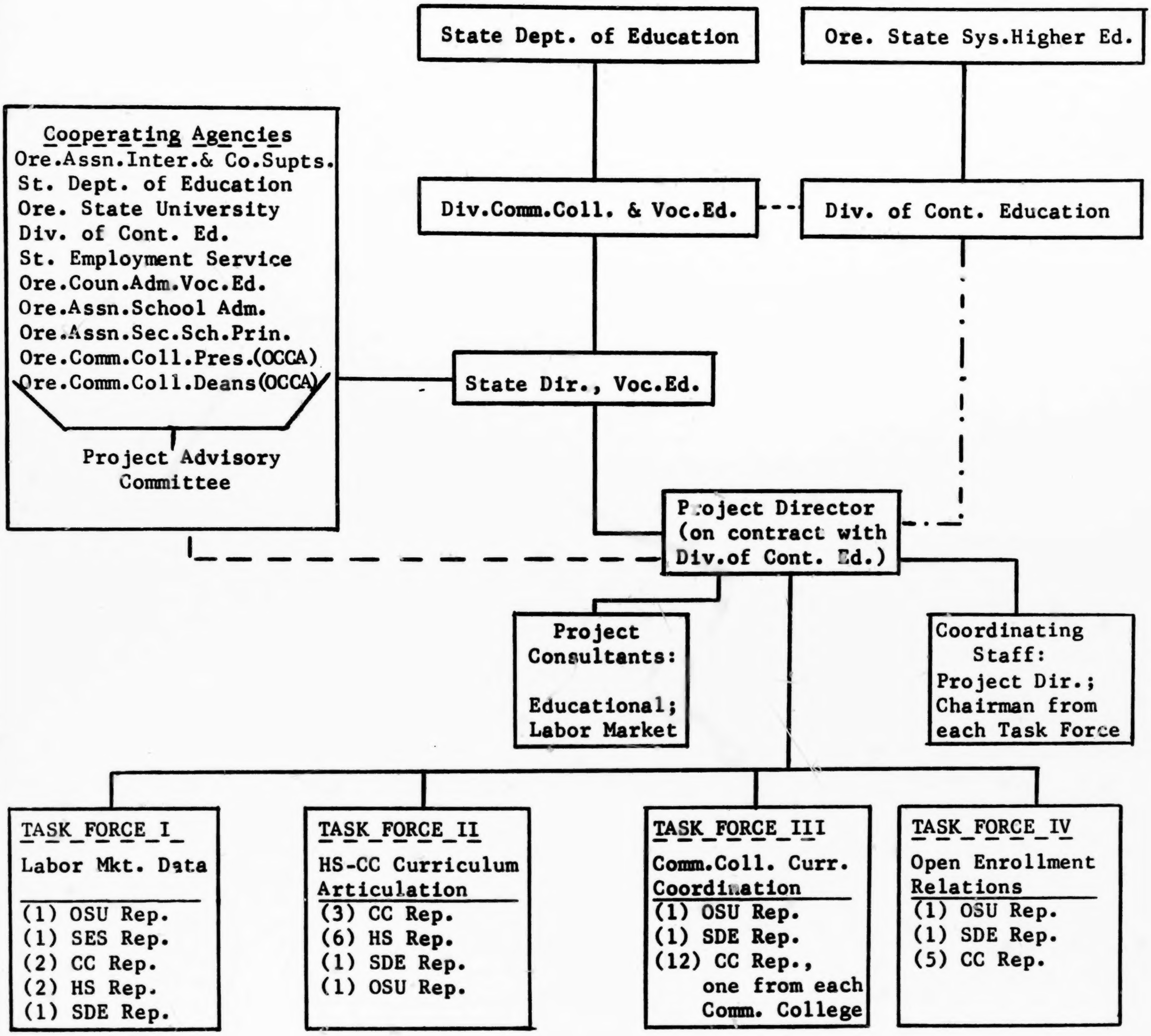
Task Force IV - Open Enrollment Relations

(1) Identify services which should be provided students enrolling in curriculums at community colleges beyond commuting distance from their homes.

(2) Develop guidelines for facilitating student admission into out-of-district community colleges where a curriculum, not offered in his local community college, is offered.

## ORGANIZATIONAL CHART

### A Project to Facilitate the Articulation and Coordination of Occupational Preparatory Curriculums from the High School Through the Community College


State Dept. of Education
Ore. State Sys.Higher Ed.
Cooperating Agencies
Ore.Assn.Inter.& Co.Supts.
St. Dept. of Education
Ore. State University
Div. of Cont. Ed.
St. Employment Service
Ore.Coun.Adm.Voc.Ed.
Ore.Assn.School Adm.
Ore.Assn.Sec.Sch.Prin.
Ore.Comm.Coll.Pres.(OCCA)
Ore.Comm.Coll.Deans(OCCA)
Project Advisory Committee
Div.Comm.Coll. & Voc.Ed.
Div. of Cont. Education
State Dir., Voc.Ed.
Project Director (on contract with Div.of Cont. Ed.)
Project Consultants: Educational; Labor Market
Coordinating Staff: Project Dir.; Chairman from each Task Force
TASK FORCE I
Labor Mkt. Data
(1) OSU Rep.
(1) SES Rep.
(2) CC Rep.
(2) HS Rep.
(1) SDE Rep.
TASK FORCE II
HS-CC Curriculum Articulation
(3) CC Rep.
(6) HS Rep.
(1) SDE Rep.
(1) OSU Rep.
TASK FORCE III
Comm.Coll. Curr. Coordination
(1) OSU Rep.
(1) SDE Rep.
(12) CC Rep., one from each Comm. College
TASK FORCE IV
Open Enrollment Relations
(1) OSU Rep.
(1) SDE Rep.
(5) CC Rep.

____________ denotes program relationship
- - - - - - denotes advisory service
___ . _ . ___ denotes organizational relationship

# SECTION III

## The Articulation and Coordination Project

## Progress Report

### Project Development:

From the Articulation-Coordination Project's inception in early May 1968, continuous development and refinement of the project has occurred in cooperation with agencies and organizations concerned with the occupational preparation of Oregon youth and adults. In group and individual meetings, representatives of Oregon community colleges and secondary educational programs met to discuss and offer suggestions for development of the project. The project was proposed to and discussed with several small groups of school administrators. The project was also presented for discussion and revision at association meetings, including the annual conferences of the Oregon Community College Association (President's Council) and the Oregon Council of Local Administrators of Vocational Education.

In addition to the aforementioned local educational personnel involved in the project's development, contact was made with and advice sought from the staff of the Oregon Board of Education Division of Community Colleges and Vocational Education, the Oregon Department of Employment, Oregon State University and the Division of Continuing Education. Revision and development of the project has continued with each meeting of the advisory council and the individual task force groups.

### Advisory Committee and Task Force Operations:

A central advisory committee has been appointed to provide overall guidance to this project. Individual contact with members of the advisory committee has been maintained and their direction for program operation sought. Additionally, individual members serving on the advisory committee have also been asked to serve on the individual task forces so as to maintain close liaison between the task forces and the advisory committee. In addition to the advisory committee's guidance for this project, many organizations and individuals have given a great amount of time toward the development and conduct of this project. In particular, Dr. Donald Shelton, Executive Secretary of the Oregon Community College Association, has provided valuable direction in the program's operation, and the staff of the Oregon Department of Employment has cooperated to the fullest.

Task Forces I, II and III have been formed and are currently functioning. Task Force I began its deliberations in late June and has basically completed work on its report. A preliminary draft of the report has been reviewed and some of the appropriate information referred to Task Forces II and III. The report of Task Force I is currently being completed and should be mailed to Task Force members and be available for other interested parties during the week of January 1.

Task Force II began meetings in late July and should complete the preliminary draft of its report by January 15. The revised and final report from Task

Force II will be available about February 17. Task Force III had its first meeting in early August and anticipates completion of a portion of its work by January 30. Task Force IV has not been formed but will be placed in operation as the work of Task Force III nears completion. It is anticipated that Task Force IV will perform a major portion of its activities after the basic work of other task forces has been completed.

## Cooperative Activities with State and Local Agencies:

The work of the Articulation-Coordination Project has disclosed many activities of state and local agencies which are similar, all or in part, to the objectives of the Articulation-Coordination Project.

The recently formed Business Education Council, representing all segments of business education in the public schools, has chosen as its number one priority the development of a rationale and patterns for the articulation of occupational programs. Members of the staff of the Articulation-Coordination Project are working closely with the Business Education Council so that the activities of the Council might be complementary to the work of the project. The Council is attempting to develop some suggested articulation patterns for business education programs which can be used in the project as examples of articulated programs.

Many local high schools and community colleges have initiated projects to bring about closer articulation of occupational programs in their geographic area. The project has sought to work closely with these agencies, in many cases including representatives as members of the appropriate task forces. The exchange of experiences between similar projects is proving valuable for all concerned. Examples of local educational agencies with whom we are cooperating include Southwestern Oregon Community College and surrounding high schools; Milwaukie Union High School and Clackamas Community College; Lane Community College and the Lane County high schools; and the Gresham Public Schools and Mt. Hood Community College.

Task Force I has, in conjunction with the Employment Service, developed materials regarding human resources and labor market needs which are currently being utilized by the staff of the Division of Community Colleges and Vocational Education, Oregon Board of Education and the Education Coordinating Council. Task Forces II and III have assisted the Guidance Section of the Division of Special Services, Oregon Board of Education, to gather information regarding occupational education programs offered in Oregon community colleges for a guidance brochure they are developing.

Contacts have been established which are facilitating close working relationships with the Private School Licensing Advisory Committee, the Apprenticeship and Training Division of the Bureau of Labor, and the Oregon Chapter of the American Society for Training and Development. These contacts are materially assisting the project's development and should prove valuable to future occupational education development.

## Significant Developments Resulting from Project Activities:

At this early stage in the project's activities a large number of significant developments are not readily apparent. However, several factors are worthy of mention, as they seem important to the future improvement of occupational education in Oregon schools.

Without question the most noteworthy development which has occurred in connection with the project's activities is the cooperative attitude exhibited toward this project by all agencies concerned with the occupational preparation of Oregon citizens. They have effectively joined together for a mutual thrust toward the further development and improvement of occupational curriculums.

One of the goals of Task Force I was the development of a model which would be useful in identifying areas of occupational education curriculum need. While it has not been possible to develop all aspects of the model, it is significant that an occupational industrial matrix is being developed and could be provided to curriculum planners in the near future. This matrix should prove extremely valuable in identifying needed areas of curriculum development.

There should also result from the project's activities a much closer working relationship regarding the supplying of occupational data to educational agencies by the Employment Service. Considerable exchange of ideas on the means of improving data supplied to curriculum planners has taken place between members of the Employment Service staff and task force participants. Of importance is the intention of the Employment Service to begin reporting data for curriculum planning as it applies to the geographic boundaries of Oregon community college districts. This factor alone should have a significant impact upon the accuracy of projected curriculum needs.

## SECTION IV

## The Articulation and Coordination Project

### Project Personnel

Staff:

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Lynn Emerson, Educational Consultant
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A. Michael Colbert, Division of Continuing Education
Labor Market Consultant - Don Steward, Department of Employment

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Glen Hankins - Bethel School District #52
Gilbert Lopez - Roseburg Senior High School
Jack Brookins - Southwestern Oregon Community College
Leo Marlantes - Mt. Hood Community College
Gordon Brownell - State Department of Employment
May DuBois - Oregon State University
Ronald Thurston - Oregon Board of Education
Thomas A. Nash - Jackson Intermediate Education District

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Task Force Members - Gilbert Bloomquist, Clackamas Community College
Gordon Brownell, State Department of Employment
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Ray La Grandeur, Lane Community College
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Merle Peters, Clatsop Community College
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Gilbert Bloomquist, Clackamas Community College
Frederick Boyle, Central Oregon Community College
Henry Cole, Salem Technical Vocational Community College
Ralph Snyder, Umpqua Community College
Edwin Haynes, Treasure Valley Community College

Task Force IV:

(Task Force to be formed)

PROJECT

## OPC $\frac{\text{ARTIC}}{\text{COORD}}$ HS-CC

# REPORT OF TASK FORCE I

# DEVELOPING EMPLOYMENT AND RELATED DATA FOR OCCUPATIONAL EDUCATION PROGRAM PLANNING

OREGON BOARD OF EDUCATION

Dale Parnell
Superintendent of Public Instruction

Public Service Building
Salem, Oregon 97310

1969

# FOREWORD

The present decade's increasing emphasis upon vocational education in Oregon's secondary schools and community colleges has produced notable expansion and improvement in the offerings provided those students preparing for their life's work. The ever increasing importance of preparing young people and adults for their occupational future has made it imperative that the State of Oregon maximize its offerings to reach the largest possible number of students with meaningful occupational preparation.

The Occupational Preparatory Curriculum Articulation-Coordination Project has had as its primary objective the development of a suggested comprehensive plan for promoting and guiding the development and expansion of occupational education in Oregon's high schools and community colleges. This report of Task Force I, Developing Employment and Related Data for Occupational Education Program Planning, is a first step in the development of the suggested plan.

Contributions to and the reporting of the findings of Task Force I has truly been a joint effort of the Oregon Board of Education, Oregon State System of Higher Education, Oregon Department of Employment, local school districts, and Oregon's community colleges.

DALE PARNELL
Superintendent of Public Instruction
Oregon Board of Education

# ACKNOWLEDGEMENTS

It is not possible to give adequate recognition to all the individuals who made contributions to this report. It has been a combined effort and of special interest to the Oregon State System of Higher Education, the Oregon Board of Education, the Oregon Department of Employment, and of Oregon's local school districts and community colleges. Special mention is made of the efforts of State Superintendent of Public Instruction, Dale Parnell who, while serving as President of the Oregon Community College Association administrators' group, fostered the project, and of James W. Sherburne, Vice Chancellor for the Division of Continuing Education, whose assistance expedited the project's implementation.

Sincere appreciation is expressed to those listed on the following page who served as members of Task Force I, and to their employing institutions which made their services possible. Guidance for the project and development of the report involved many members of the Division of Community Colleges and Vocational Education, Oregon Board of Education, under the guidance of William G. Loomis, and their time is warmly acknowledged. Most appreciatively recognized is the work of the Task Force I Staff Coordinator, Dale Pinckney of Salem Technical-Vocational Community College, who contributed throughout the entire project, and whose commitment to the final preparation of this report materially improved its value.

DARRELL L. WARD, Coordinator
Vocational Education
Division of Continuing Education
Oregon State System of Higher Ed.

AL RINGO, State Director
Vocational Education
Division of Community Colleges
and Vocational Education
Oregon Board of Education

# ARTICULATION-COORDINATION PROJECT PERSONNEL

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Glen Hankins, Bethel School District 52
Gilbert Lopez, Roseburg Senior High School
Jack Brookins, Southwestern Oregon Community College
Leo Marlantes, Mt. Hood Community College
Gordon Brownell, State Department of Employment
May DuBois, Oregon State University
Ronald Thurston, Oregon Board of Education
Thomas A. Nash, Jackson Intermediate Education District

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Gordon Brownell, State Department of Employment
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Larry Heath, Oregon State University
Donovan Kimball, Springfield Public Schools

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Patricia Lantz, Molalla Union High School
Dale E. Pinckney, Salem Technical-Vocational Community College
Leslie B. Robertson, Southern Oregon College

Labor Market Consultant: Don Steward, State Department of Employment

# PREFACE

This report of Task Force I of the Articulation-Coordination Project is concerned with the data--particularly employment data--aspect of curriculum planning. Although the report is but one part of a much broader project, those involved in its development have tried to produce a report that will at least be useful in its own right. Nevertheless, it is important that the substance of the report be viewed in the perspective of the overall project.

The total project has been organized around the major objective of producing a suggested comprehensive plan for promoting and guiding the development and expansion of occupational education in Oregon high schools and community colleges. Such a plan ultimately must provide for articulation of occupational preparatory curriculums from the senior high school to specialized vocational-technical preparation in the community college, for coordination and distribution of occupational preparatory curriculums among community colleges, and for operation of student services that promote effective development of human resources and efficient utilization of physical resources.

Development of a decision-making process that will be adequate to a task of this magnitude obviously will depend in large part upon the data base that is made available to support it. To work toward the evolution of a process which will provide the needed data base in a usable continuing pattern has been the central concern of this task force.

In their proceedings and in preparing this report, Task Force I members and consultants have sought to serve three major aims. First, they have tried to assemble and present a collection of data that will prove immediately useful to those involved in occupational curriculum planning, including the other task forces engaged in this total project. Second, they have attempted to identify data gaps and weaknesses in data collection and presentation, and to suggest ways in which these might be improved to serve educational planning purposes. Third, and certainly the most important, they have sought to be instrumental in the initiation of a continuing process for up-grading the data base available for occupational education planning and decision-making.

It would be pretentious to contend that the task force has attained satisfactorily the desired goals. Given the sheer volume and diversity of employment data on the one hand, and the inapplicability of much of it for educational planning on the other, it would be more than surprising if the task force had achieved all its goals in the short time allotted for its work.

The preceding paragraph is neither a disclaimer of whatever value this report may prove to have nor an apology for its all-too-obvious shortcomings. In Oregon, as elsewhere in the nation, persistent efforts to apply employment data to educational planning on a broad scale are of relatively recent origin. It would indeed be gratifying if the efforts of Task Force I have met with some measure of success in each of the three aims outlined above. However, if the work of the task force proves successful in only the third of its stated aims--to be instrumental in initiating a process for up-grading the data base used in planning and decision-making--those involved in the work will count their efforts well spent.

Throughout its work the task force has benefited from a high degree of cooperation and coordination provided by a variety of groups and individuals; and it has drawn upon the special knowledge and expertise of a number of people. Members of the task force are particularly indebted to the consultant staff provided it by the project director, Darrell L. Ward, of the Division of Continuing Education. In every case, the staff consultants contributed more than would normally be expected of the consultant role. These staff consultants were: Dr. Lynn A. Emerson, who not only brought his special depth and breadth of knowledge and experience in vocational-technical education to bear on the problems faced by the task force, but wrote the introduction to this report and, in addition, made available to the task force his own Data Book for Occupational Education Planning; Dale E. Pinckney, who served as Staff Coordinator and prepared much of the data and manuscript that have gone into this report; and Patricia Lantz, who gathered and arranged most of the educational data that have been included.

Much of the employment data essential to the development of this report was obtainable only through the cooperation and assistance of the State of Oregon Department of Employment. Particular assistance was rendered by Mr. Don Steward, who provided up-dated employment information and helped to work out possible revisions in the presentation of employment data.

The task force is also indebted to Mr. Fred Davey, Program Director for the Employee Relations Department of Tektronix, Inc., and President of the Oregon Chapter of the American Society for Training and Development, and to Mr. William R. Schuck, Director of the Apprenticeship and Training Division of the Bureau of Labor. Mr. Davey and Mr. Schuck met with the task force to discuss training problems and policies and data utilization in private industry and apprenticeship programs, respectively.

A great deal of the educational data essential to the development of this report was provided by the Oregon Board of Education. Mr. Al Ringo, State Director of Vocational Education, Community Colleges and Vocational Education Division, and his staff supplied much of the data relative to vocational education enrollments. Mr. Dennis W. Patch and Mr. Loy Barbour, Consultants, Private Vocational School Licensing, Administrative Field Services Division, provided data concerning private schools and arranged for communication with private school representatives. Dr. Milt R. Baum, Director, Research and School Finance, Administrative Field Services Division, also furnished data regarding school enrollments.

Paul F. Wilmeth,
Chairman
Gilbert Bloomquist
Gordon Brownell
Glen Hankins
Larry Heath
Donovan Kimball

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# INTRODUCTION

by Dr. Lynn A. Emerson

In the planning of occupational education programs the steps involved and the data needed are much alike irrespective of the type of institution or the level on which it operates. Program planning for the community college has much in common with that for high school programs. In outlining suggested procedures for program planning the items listed in the following paragraphs are mentioned in terms of the community college. Generally they will apply equally well to such planning for the high school or other educational institution.

The overall steps in program planning for occupational education in the community college might be outlined as follows:

1) Review the broad aspects of the socio-economic setting that will have influence on program planning.
2) Carefully define the frame of reference within which the proposed program will operate.
3) Investigate those areas of occupational life that appear to have potential with respect to curriculum offerings.
4) Make tentative selection of curriculums for intensive study.
5) Make decision concerning the curriculums to be included in the program.
6) Develop the curriculums selected.

If the program planning is to be effective it must be done in the light of information that is comprehensive and pertinent. Many types of data are needed. Here are some of them, arranged under the steps outlined above.

Review of the socio-economic setting.

Population trends - local, state-wide and national.
- Characteristics - changing character.
- Migration, in and out of state.
- Growth or decline - rates of change.

Economic factors - business, industry, agriculture, service, etc.
- Growth or decline of industries, locally and nationally.
- Changes in products and processes.
- Long term trends in broad occupational fields.
- Development of new industries - migration or expansion.
- Proposed resources development - irrigation, atomic power, shipping, tourism.
- Legislation in such fields as medical care, employment of minority group workers, and the like.
- Impacts of computers, automation and other far-reaching new developments.

Labor market factors - local, state, national.
- Present status of the labor force - size, occupational characteristics, entrance requirements, etc.
- Manpower trends, by occupational groups.
- New workers required for growth and replacement.

Defining the frame of reference in which the program will operate.

Geographical area to be served.
- Area from which students in fulltime programs will be recruited.
- Area to be served with curriculums for employed workers.
- Labor market to be utilized in placement of graduates.

Range of levels of curriculums to be offered.
- Technician - skilled worker - semiskilled worker.

Overall initial size of the program. (Partly based upon financial resources.)
- Number of fulltime students to accommodated. Sources of students.
- Number of curriculums to be included.

Role of the institution in the state-wide pattern.
- Articulation and coordination with other institutions.

Other educational agencies serving the same needs, in the area.

Potential rate of growth of the institution.

Investigation of potential curriculum offerings.

Securing the opinions of informed persons - employers, employment service personnel, trade associations, labor associations, etc.

Study of labor market needs from available data.
- Published reports of the State Employment Service.
- Reports of surveys made by the employment service or other agencies.
- Special studies of the area made specifically for program planning.
- Estimates based upon Census data.
- Appraisal of help wanted ads in appropriate newspapers.
- Study of national, state-wide, and area data as well as local.

Study of socio-economic and technological changes of large magnitude that have import with respect to the labor force needs.
- Technical developments and applications, such as computers.
- Social developments that will create demands for workers, such as Medicare.

Study of occupational curriculum offerings in other communities and states, for ideas concerning what others are doing.
- Within the State, the Pacific Northwest, and nationally.
- Titles and frequency of curriculum offerings.
- New curriculums in other institutions.

Selection of curriculums for intensive study.

Establishing criteria needed for comparative appraisal of possible offerings, such as:
- Potential labor market demand for graduates of the curriculum - present and long term.
- Other sources of trained persons to fill expected openings.
- Present curriculum offerings in this field in the area - in community colleges or other institutions.
- Student potential - appeal of the curriculum and ease of securing students.
- Space and equipment requirements for the curriculum.
- Costs of operating the proposed curriculum.
- Priority as compared with other curriculums.
- Potential market for evening and other part-time classes.

Decision concerning curriculums to be offered.

Action based upon careful study of all available data, with appropriate weight given to all items.

Developing the selected curriculums.

Identifying the occupations to be included as objectives of the curriculum.

Analyzing the occupations for training content.

Organizing the content into appropriate order.

Dividing the overall content into suitable courses.

Developing the course outlines.

Selecting suitable methods of instruction.

Determining required instructional equipment and materials.

### Data Application and Sources

Good program planning utilizes as much pertinent data as is practicable to secure, and uses such data effectively. The planner must be able to see meaning in the data he uses. He must be cognizant of the limitations of the data -- the errors, omissions, imbalance, and the like. He should know the sources of the more useful and reliable data. He should be efficient in its utilization.

It is well to remember that data gathering too often becomes a substitute for thinking, and that good programs arise from effective thinking and appropriate implementation. But without the needed data, program planning may take the form of arm-chair philosophy. It is thus essential that the right kinds of data be gathered and used effectively.

Much of the data is available in raw form; it must be summarized or compiled before it is of value. For example, it may be desirable to compare the enrollments in a given curriculum with some other pertinent item, such as the numbers of students in auto mechanics in a selected state with the number of registered automobiles in that state. This involves selection of data from different sources and bringing them together for comparative purposes. Or the program planner may need only a few of the items in a large table, and must isolate them before he can appraise them properly. The task of using data effectively thus involves the ability to sense data that have value for the purpose at hand, and to put such data into usable form.

Data useful in occupational education program planning cover a wide scope and are found in many places. Some broad categories into which such data might be classified would include population data, industrial and economic trends, size and composition of the labor force, numbers employed in specified occupational groups and in specific occupations, educational data of broad scope such as school retention, growth and development of occupational education on state and national basis, range and frequency of individual curriculum offerings in selected states and the nation, and the like.

Population data are perhaps more useful in state-wide planning than for the planning of curriculums for a single institution. Yet in the latter case it is essential to know the trend of population in the area. In one Eastern state the population of one county decreased some 20 percent in a given period whereas another county increased some 170 percent during that same period. It is obvious that the planning for educational services for the one county would be quite different from that of the other. The status quo of population is important, but for program planning the trend in population is equally so.

A valuable source of population is the U. S. Bureau of the Census and its publications. The census of population taken every ten years provides much valuable data, and makes possible the development of data on trends by compiling figures for several successive censuses. The published reports -- in several volumes -- deal with many aspects of population, and those for individual states break the data down into many usable categories. The volume entitled "Detailed Characteristics" for the 1960 Census -- Oregon section -- is very useful. This volume contains much occupational data, with breakdown into employment in some 400 occupations, with data for male and female workers, for 1950 as well as 1960. In the absence of better data, the figures for 1950 and 1960 may be used as a basis of projection of future employment and the needs for workers. This, however, has to be done with care, and at best is a very rough estimate.

The Statistical Abstract of the United States provides a wide range of data in summary form. The 1963 Edition includes also some 50 pages of sources of statistics. The World Almanac -- published annually -- has good population and other data. Many other organizations publish useful data -- such as the National Bureau of Economic Research, the Social Science Research Council, and many organizations dealing with statistics pertaining to a single industry. Various state bodies, such as the Bureau of Business and Economic Research of the University of Oregon, are useful sources of data.

Data on economic and industrial trends are available from such national agencies as those just mentioned, from the National Industrial Conference Board, from various trade associations, from the Bureau of Labor Statistics, and a great variety of other national bodies. State-wide data are usually available from the department of the University concerned with economic research, from the Division of Research of the State Employment Service, from annual reports issued shortly after the first of each year by large newspapers (such as the January 28, 1968 supplement to the Portland Oregonian), and the like. For long-term educational planning the consideration of economic and industrial trends has great value. For example, the projection of the impact that the computer will have on society in the years ahead, or the changes that are taking place in agriculture, or the changes taking place in the size of political units -- these and many other trends should have important bearing on long-term planning for the community college.

Occupational and labor market data are perhaps the most important source of information needed in the planning of occupational education programs. The placement of graduates in jobs, and the recruiting of students for extension programs depend directly upon what is happening in the work force. If the occupational curriculum is to be effective it must be based upon the needs of the labor market, current and projected. Information about the current situation in employment enables appropriate planning of course offerings for employed workers, which should be considered of equal importance to the planning of preparatory programs to educate youth for effective entry into employment. In planning the preemployment program it is necessary to look ahead to the needs of the labor market several years hence. If one were starting from scratch today to develop a substantial occupational preparatory program it might take as long as two years to do the planning, provide the building and equipment, organize the courses, recruit the staff, and enroll the students. If the program were two years in length, as is common in the community college, the elapsed time before graduates are ready for jobs would be four years. This "lead time" must be considered in all such program planning. Projection always entails some risks of error, but it must be utilized.

Labor market data are of many types, and come from a variety of sources. It is relatively easier to obtain occupational data on a national basis than on a state or local basis. And frequently when local data are needed a special occupational survey must be made. Local labor market data may be needed for the planning of programs for employed workers. And it may be needed with respect to those graduates or dropouts from preparatory programs who will secure jobs in the local area. But it must be kept in mind that the placement market for graduates of community college occupational programs is usually much broader than the local community. Technicians trained in Oregon may find jobs in California, or Georgia, or the District of Columbia, as well as in Portland or Seattle. Thus the status of the total labor market must be kept in mind when making plans. To get the broad picture the curriculum planner will study labor market data from other states as well as nationally, and will secure all the pertinent data he can dealing with the local area and his own state.

The U. S. Department of Labor is the best single source for labor market data on a national scale. The Bureau of Labor Statistics, the Bureau of Employment Security, the Women's Bureau, the Manpower Administration -- these and other units provide much published material, emerging from the offices in Washington. State departments of employment security have made many studies, state-wide and in local areas. North Carolina has made several state-wide studies of different sectors of the occupational world. Oklahoma has produced a valuable state-wide survey. New York State has published a massive report on technicians state-wide, as well as working cooperatively with local educational authorities in making county and other unit area surveys. Such reports may well be studied from the standpoint of getting understanding of the labor market situation in the area surveyed, and also of noting the survey and reporting techniques used which might be of value locally.

In using labor market data one must be careful to interpret carefully. Errors creep in when gathering or tabulating statistics, coverage may vary, and comparisons should be limited to comparable data. Data secured by divisions of employment security may be limited to "covered" employment or may omit self employed persons. In using Census data, it must be kept in mind that the information is secured by census takers who may not fully understand the meaning of occupational terms, and that housewives or others who furnish the data may not provide truly accurate information. The report usually shows much larger numbers under the category of secretary than for that of stenographer, for example.

Data showing the breakdown of the labor force by individual occupations are highly desirable, as compared with broad groupings. Current status of employment is needed when planning courses for employed workers; projections are needed for indicating new worker requirements. In getting at the numbers of new workers needed in a given occupation one needs information on those required due to growth or decline of the occupation, and those required as replacement for losses by attrition. Workers die, are retired, or leave the occupation for some other activity, and the numbers needed for such replacement must be carefully estimated. The Bureau of Labor Statistics has developed procedures for making such estimates, involving age and sex of workers, as well as consideration of other special factors. For example, the attrition rate for technicians as presently used by the Bureau includes a much higher rate of transfer to other occupations than is normally found.

Oregon has available a considerable amount of occupational information, in state-wide reports of the Department of Employment, in county and other local surveys in which they have participated. Other special surveys such as that of the Metropolitan Area Manpower Council of Portland are of much value. Properly interpreted, these surveys provide much useful date for program planning.

Although each community college curriculum is somewhat of an individual entity, in most respects it is quite like curriculums in the same occupational field in other institutions. It is thus helpful to study what other institutions have done in program planning, for the purpose of getting ideas concerning curriculum offerings and for comparisons with what is proposed for the new setting. Other educational data are also useful, such as sources of students, retention, proportions of high school graduates who enter community college occupational curriculums, occupational curriculum titles, frequency with which specific curriculums occur in the nation as a whole, etc. These data are available from published materials from the U. S. Office of Education, from state departments of education, from schools of education, from specific institutions. Much information is obtainable from the school catalog. Current educational periodicals often carry information about new curriculum offerings. Junior College Journal, American Vocational Journal, School Shop, Technical Education News, and the newsletters of the American Association of Junior Colleges and the Technical Education Branch of the U. S. Office of Education are among the better sources.

The annual reports of the Division of Vocational-Technical Education of the U. S. Office of Education provide a valuable source for comparison of the programs offered in the several states, and include program descriptions as well as enrollment and other statistics.

Statistical data have an important function in program planning, but it must be recognized that they provide only raw material. They must be used intelligently. "Data gathering is no substitute for thinking".

# SECTION I

# THE TASK FORCE ASSIGNMENT, OBJECTIVES, AND PROCEDURES

## Task Force Assignment

Of the overall curriculum planning sequence outlined by Dr. Emerson in his excellent introduction to this report, the assignment initially given the members and consultants involved in the work of Task Force I included only the labor market needs aspect. As stated in the original Articulation-Coordination Project planning document, the general objective of Task Force I was: "to collect, analyze, and put in a form usable for curriculum planning data regarding the current and projected labor market needs."

From the outset, however, the Task Force worked with considerable latitude in defining the boundaries of its assignment. In the session for briefing and organization, it was emphasized that, while the focus of the Task Force effort was to be upon the collection and use of employment data for curriculum planning, the members were to determine the direction and scope of their project and develop specific objectives appropriate to them. In effect, these activities became an essential part of the assignment undertaken by Task Force I.

## Task Force Objectives

In determining the scope of its activities and developing objectives, the Task Force faced an immediate problem of definition. It was necessary to reach an agreement as to the meaning of the phrase "for curriculum planning" that appeared in the overall project plan. If the phrase were taken to mean structuring the content of occupational curriculums, the work of the Task Force would be shaped in one direction; if it were taken to mean identifying curriculums to be offered, the work would be shaped in quite another direction. At the same time, if the phrase were taken to embrace both of these, the assignment given the group was clearly not manageable in the time allotted with the resources available.

To resolve the problem, Task Force members consulted the planning outline of the overall Articulation-Coordination Project to determine which of the two feasible alternatives would best serve the conception of the total project. The consensus was that the second alternative, identifying curriculums to be offered, supported fully the project conception, while the first alternative did not. This, of course, meant that the Task Force would concentrate upon employment trends and occupational opportunities, rather than upon occupational skill and knowledge requirements.

If the definition agreed upon tended to narrow somewhat the scope of the Task Force effort, two other decisions reached by the group had the effect of broadening the effort considerably. The first decision, reached early in the working sessions of the Task Force, was that any compilation of data produced by the group should not be limited to employment information alone, but should include data concerning population trends and characteristics, data reflecting student enrollment trends, and information about private schools and apprenticeship programs. The second decision, which evolved after the Task Force was well along in its examination and discussion of employment data available for use in educational planning, and which grew directly out of the examination and discussion, was that the Task Force should work toward the development of a systematic process of employment data collection and presentation which will facilitate occupational education planning.

Taken together, these decisions considerably broadened the scope of of the Task Force effort. More important, perhaps, the second one constituted a major re-direction and change in emphasis. The work of Task Force personnel was shifted somewhat away from searching through mountains of employment data for information directly of value in occupational education planning; it became at least equally directed toward studying and analyzing problems, developments, and possibilities in the processes of data-gathering and data-presentation. In this, the compilation-of-data objective was not discarded: however, it did become one of lesser emphasis.

From the first, Task Force I personnel were uncomfortable with the virtual certainty that, even if they succeeded in compiling "data usable for curriculum planning," the usefulness of the materiel developed would be short-lived at best. Equally disturbing to Task Force members was the almost total absence of employment data gathered and presented specifically for planning occupational education programs (this problem is discussed further in Section II). Each of these concerns was a major factor in the shift of the Task Force emphasis to a future-orientation and more involvement with the data-gathering and data-distribution processes.

The changes that emerged in Task Force direction, scope, and emphasis inevitably brought about a period of continuing revision and refinement of Task Force objectives. The objectives, along with the direction and scope, evolved out of the early findings of the Task Force, the problems encountered by it, and the interaction among its members. The objectives that ultimately were identified were:

(1) To identify major gaps and weaknesses in employment data presently available for use in planning occupational education programs.

(2) To suggest ways to improve the collection and presentation of employment data for use in planning occupational education programs.

(3) To suggest an approach to the systematic utilization of employment data in the identification of occupational education programs that are needed.

(4) To gather and put in order a collection of selected employment, population, and education data that will be useful to other Task Forces in the Articulation-Coordination Project, and to individuals now involved in planning occupational education programs.

Between regularly scheduled working sessions of the full Task Force, individuals or teams appointed from its members or consultants were assigned to work on specified aspects of the objectives identified. These individuals and teams gathered and compiled data, investigated problem areas, explored developments in data-compilation and use in other areas, sought out information on present data-handling and data-presentation capabilities in Oregon, and tried to determine which data and which data-reporting formats might be most useful in identifying needs for occupational education programs. The materials and information gathered were then brought before the complete Task Force for discussion and analysis.

The combined objectives produced two major areas of activity: first, out of objectives one through three, working to determine the feasibility of and means for improving employment data collection and presentation for occupational education planning; and second, out of objective number four, compiling from presently available materials a collection of data that will be immediately useful in occupational education planning.

The findings and suggestions developed out of the first activity area are outlined in Section II of this report; the materials generated through the second major activity are presented in the last four sections (III through VI). The data presented in Sections III through VI are left, for the most part, to the interpretations of the user. There are far too many possible combinations of the data, and implications that may be seen by individuals in specific situations or geographical locations, to permit an adequate, or even appropriate, analysis in the text of this report. Certainly, the data presented should be examined and used in the ways and with the precautions outlined by Dr. Emerson in his introduction to the Task Force report.

# SECTION II

## EMPLOYMENT DATA IN OCCUPATIONAL EDUCATION PLANNING: PROBLEMS AND POSSIBILITIES

### Introduction

The analysis of manpower supply and demand has become increasingly vital to educators in occupational programs in recent years. Even though vocational educators have a long tradition of concern with the employment market for placement of graduates, the present emphasis is so much more broad in scope and so significant in its implications that it actually constitutes a new dimension in educational planning.

The primary factor shaping the new emphasis has, of course, been the abundance of federal manpower legislation in the first half of the sixties. This legislation has not only assigned an increasingly prominent role to education in the achievement of national manpower goals, but has tied program planning, particularly in vocational education, more and more closely to national manpower policies. It also has placed an urgent priority on the expansion and refinement of occupational information.

In providing funds for manpower training, the Congress wrote into the Area Redevelopment Act of 1961 the provision that before any training could be approved, there had to be established a "reasonable expectation of employment" for the trainees upon completion of the training.* This extremely significant terminology was repeated in the Manpower Development and Training Act of 1962,* and the concept was carried over into the Vocational Education Act of 1963.** The result has been a predictable flurry of concern on the part of various government and education agencies, along with some feverish activity on the part of many economists, econometricians, researchers, and educators--most of which has centered upon the problem of finding viable techniques for determining accurately present employment needs and making valid forecasts of long range employment opportunities.

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*Area Redevelopment Act, Public Law 87-27, May 1, 1961, sec. 16(6).

Intensified concern and activity have made it abundantly clear that the collection of employment-needs data and the development of long range employment forecasting techniques have lagged well behind other aspects of job market information programs. There is, of course, a number of reasons for the lag. The expense involved in collecting data by occupation, the problem of translating employer-reported job titles into a standard nomenclature, the burden borne by employers in making comprehensive reports, the inherent uncertainty that accompanies any employment-opportunity forecasting technique--all these are among the reasons why these areas of information have not progressed as far as have other areas of employment market statistical programs.

It is important to note a further impact of the terminology and concept included in the legislation referred to above: that of giving heavy emphasis to the demand side of the manpower equation. While this may be a result simply of assigning priorities or assuming that employment demand automatically reflects supply, the result is that little work is being undertaken that deals specifically with the supply side of the equation. Certainly, it is entirely possible for employment in an occupation to increase over an extended period of time, but at the same time for existing forces in the job market to supply the workers. The point is that even though much occupational education planning has been tied by legislation to a "shortage concept," and the shortage is being defined almost entirely in terms of employment demand, there is need for analysis of the supply side as well. Nonetheless, the current prevailing concern is with the development of improved employment-demand data; and occupational education program planning is more dependent upon this kind of data than ever before.

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*Manpower Development and Training Act of 1962, Public Law 87-415, March 15, 1962, title II, pt. A, sec.202(d).

** The Vocational Education Act of 1963, Department of Health, Education, and Welfare, Office of Education, OE-80034, p. 7.

## Questions of Philosophy and Intent

Many people, educators among them, have evinced considerable uneasiness over the developments outlined above. They are uncomfortable with the conception that harnesses, on the surface at least, educational planning so firmly to the needs of the economy. For some, the question turns upon a point of social philosophy. They would argue that in a democratic society the individual should be able to prepare for and follow any career of his own choosing, and that the availability of training should not, therefore, be determined so directly and completely by the employment market. They would be more comfortable with a situation that left the articulation of economic needs and education to individual adaptation based upon broad educational offerings and preparation.

A variation of this point of view is expressed by those who hold that, while education must be articulated with the manpower needs of society, this should be achieved indirectly through the interplay of the market, i.e., let the decisions of individuals be determined by the relative attractiveness of various occupations (wages, working conditions, etc.)

and their own preferences for different types of work. Proponents of this point of view would hold that the function of planning is to anticipate these decisions and provide the programs desired by the students. They also would urge the provision of information on employment opportunities and guidance services to help in making program choices. They would contend that this approach preserves the freedom of individual choice and depends on the interplay of the competitive market to determine the allocation of individuals to occupations.

Other concerned persons, while sharing, perhaps, some of the views sketchily outlined above, are suspicious of the heavy hand of the centralized authority. They are apprehensive of the possibility of planning the life of the individual to meet economic needs; and they frequently distrust our capabilities to anticipate these needs. Some are fearful of the potential for destruction of local autonomy, while a few appear to feel threatened with the possible diminution or loss of established programs.

It must be emphasized that neither the personnel involved in the work of Task Force I nor the people consulted in the course of that work were averse to the effort to initiate ways to provide improved employment-needs data. The points of view outlined were discussed because they are factors in educational planning at all levels--federal, state, and local.

In any case, to argue against the development of an improved employment data base for occupational education planning would appear to be a highly untenable position. People involved in such planning are engaged in making forecasts and projections, whether they view their activities in that perspective or not. Efforts such as this one seek simply to make an improved informational base available to those responsible for making decisions in occupational education program planning.

### The Data Problem--General

There are superficial elements of paradox in the employment data picture that confronts the educational planner. First, the sheer volume of employment data available to him is overwhelming, but virtually none of it has been developed specifically to facilitate occupational education planning; second, while the data handling capability that could serve him is almost limitless, the particular inputs he most needs are difficult or impossible to obtain; and, third, the available data are best at levels that are the least useful to him, and weakest at the levels he most needs.

As Dr. Emerson makes clear in the Introduction, an enormous amount of employment data is available to guide or misguide the curriculum planner; and the growing technical capability for handling and producing data makes it inevitable that there will be more. Certainly, it is clear that today the technology to support a full national job vacancy reporting system is at hand. All that is needed are the data inputs--and these, obviously, could be provided if the needed resources were made available. However, the required inputs are not available and, for the present at least, the educational planner must depend on the data at hand.

In this, a major problem confronting him is the fact that at the state and local levels, where educational planning primarily takes place, there is a woeful shortage of the kinds of data that are necessary. The data produced at the national level are much better; and in the absence of adequate state and local data, educational planners frequently are forced to rely upon approximations developed out of national data. The data are, of course, valuable tools in most instances because of their general quality; but exclusive reliance upon them can be hazardous in local educational decision-making. Too often this amounts to using the data for purposes they were never designed to serve.

The preceding is in no sense a reproach to the agencies or individuals involved in employment data gathering and dissemination at state and local levels. The relative superiority of national data is an entirely predictable result of established priorities, concentration of resources, and inherent advantages in data application.

As pointed out earlier in this report, the current emphasis upon gathering and utilizing employment data for occupational education planning on a broad scale is a relatively recent phenomenon. The inevitable corollary of this is that the data gathered previously, along with the techniques employed, were designed to serve purposes other than educational planning. The mandate that the Employment Service system provide job market data specifically for such planning came as a rather abrupt requirement for additional services on the part of state and local agencies. More important, perhaps, providing the added services called for new, or at least different, data gathering and reporting techniques.

The fact that at the federal level statistical data-handling techniques and employment forecasting developments are far more sophisticated than those at state and local levels is widely acknowledged and requires no elaboration here. The greater sophistication is the result of applying more resources to bring higher levels of expertise to bear on the problems. It probably is more germane to the purposes of this report to note that the greater sophistication at the national level has not produced, thus far at least, a viable technique for employment-needs forecasting that is readily available for implementation at state and local levels. This statement is not intended as a criticism of attainment at the national level. All the available literature indicates that the economists, econometricians, and other specialists involved at the national level would be among the first to agree. Moreover, it is clear that much effort at the national level is being directed toward the solution of the problem.

National data also have some inherent advantages over data generated at state and local--particularly local--levels. This is especially true of data that include projections of employment supply and demand. The advantages arise largely out of the characteristics of the statistical universe dealt with at the national level as opposed to those of the universe dealt with at state and local levels. Most obvious, perhaps, is the size and diversity of the economic and population bases dealt with in national projections. These tend to minimize both the problem of adequate sampling and the impact of unexpected developments in specific industries or geographical areas. In many state and local situations, sampling must be extremely thorough to develop an adequate picture of the economy; and where the economy is dominated by one or a few industries, any unanticipated development may seriously distort employment projections. The latter is true also in areas of relatively low industrial and business development.

In addition, and equally important, national projections are based upon manpower supply and demand that are largely self-contained (i.e., the immigration and emigration of trained workers is a negligible factor in the data). Obviously, this is not true of employment projections at state and local levels. In these, worker mobility is a problem which seriously complicates educational planning. The mobility can be considerable. For example, census data show that two out of five people who were eighteen years old in 1955 had moved to a different locality by 1960--and roughly half of those who moved had moved to a different state. The same data also show that almost one-half of the men in their forties were living in communities other than the one in which they attended high school. Clearly, worker mobility constitutes a problem for state and local educational planners that is not fully-shared by those at the national level.

The planner of occupational education programs at state and local levels inevitably finds himself in an uncomfortable position. On the one hand, he is faced with the requirement of tying offerings in occupational education to realistic employment opportunities, and on the other, masses of data that are inappropriate, for the most part, to the task required.

The urgent need, in Oregon and elsewhere in the nation, is for a continuing process that provides the best available information rapidly and intelligibly to those involved in planning occupational education programs.

None of the foregoing should be construed to mean that progress in the desired direction is not being made. As noted above, considerable experimentation and research is underway at the national level; and recent developments in Oregon hold the promise of significant advancements in the collection and presentation of employment supply and demand data for educational planning.

## Cooperative Activities in Occupational Education Program Planning

National manpower legislation enacted in the 1960's (referred to previously in this report on pages 16 and 17) for the first time pointed the way toward a somewhat uniform cooperative approach to developing and using employment information for occupational education planning. Cooperating agencies were to be those representing the Department of Labor and the state educational system. Under Public Law 88-210, state plans for vocational education must include agreements between these state agencies. The agreements require the U.S. Department of Labor to "conduct surveys to determine area and state employment needs." In turn, the state boards of education agree to "utilize the information provided by the state departments of labor as a basis for the development of new vocational programs, modification of existing programs, and curricular changes."

### Area Skill Surveys

The major instrument designed to provide educators with the required employment data has been the area skill survey. This approach has been in evidence sufficiently long to require little elaboration here insofar as content and methodology are concerned.* The personnel of Task Force I and others involved in the Articulation-Coordination Project were familiar with the approach; and most had had occasion to use the 1966 skill survey produced by the Oregon State Department of Employment.** The concerns of Task Force I were less with the methodology than with an examination of the deficiencies and strengths of area skill surveys in other states and in Oregon, along with the development of some suggestions for making them more useful for educational planning in Oregon.

Since federal requirements typically allowed for considerable latitude in the implementation of area skill surveys, it is not surprising that the surveys show a great deal of variability from state to state. Despite the variations, it is possible to identify a number of generally recognized deficiencies:

(1) Overall, the surveys are not conducted with adequate coverage of a sufficient number of states or of the major metropolitan areas.

(2) For the most part--but with some notable exceptions--the studies present employment data in a format that is extremely limited in its

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*The need for job market information and the methodologies used are described in Area Skill Survey, Department of Labor, Bureau of Employment Security, Washington, D.C., November 1965, pp. 1-2.

**State of Oregon Department of Employment, Technological Change and its Impact on the Oregon Labor Force. Salem, Oregon: The Department, 1966.

usefulness for educational planning. Given the recency of the requirement for providing data for this purpose, this is hardly an unexpected weakness.

(3) The surveys--again with some exceptions--do not project far enough into the future. In general, projections have been limited to two years into the future, although some have included projections of up to five years. Two-year projections, unless they are kept current through a rigorous schedule of up-dating, are of limited value in the planning, implementation, and operation of most occupational education programs (in this connection, see Dr. Emerson's comments in the Introduction, page 7).

(4) The surveys, despite the short time-frames involved in most of them, generally are not kept current. The skill survey technique is both time-consuming and costly; and, for the most part, state employment services have been called upon to provide the additional service to the educational system without additional funding.

(5) Some surveys, it is reported, have generated little interest on the part of, or use by, vocational educators. Whether this has been due to shortcomings in the data developed is not clear. At the same time, it is clear that in a number of instances the result has been resentment on the part of employment service personnel, and effective cooperative effort has been made more difficult to achieve. In some cases, employment service people have expressed the conviction that vocational educators should provide vocational funds to support the augmented effort required of them. One manpower economist has expressed it this way:

"There have been a number of instances in which the

> state vocational education people have attempted to get the information themselves, or have financed private consultants or universities to obtain the information for them. It is clearly paradoxical that the employment service with the most knowhow in the manpower field frequently finds itself sitting on the sidelines while money is being distributed to others with far less experience to do the job . . .*

It must quickly and emphatically be noted that, although some elements of these general deficiencies are evident in Oregon, they are not significant factors, for the most part, in this state. The state and area studies made in Oregon include projections up to four years; and in this state there is provision to keep them current. At present, there is a legislative mandate that the studies be up-dated at two year intervals. In addition, close cooperative relationships between the employment service and board of education have been established and maintained. Employment service personnel report that educators in fact have been the primary users of the area and statewide studies completed in 1966. In completing their 1968 studies, Department of Employment personnel have consulted with and sought advice and counsel from vocational educators.

Whatever their shortcomings, area skill surveys have proven generally useful--and this is especially true in Oregon. Successful functioning of the joint agreements between departments of labor and education at state and national levels ultimately require joint concepts, shared priorities, and common--or at least mutually understood--methodology and terminology.

The past few years have brought considerable progress toward the attainment of these requirements in Oregon. Major suggestions of Task Force I include: (1) a continued reliance by the Oregon Board of Education upon the State Department of Employment as the primary source of needed employment information, and (2) allocation of additional resources to make possible increased coordination of the efforts of the two agencies in the development of employment data for use in planning occupational education programs.

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*Employment Service Review, January-February 1967, pp. 63-64.

### Other Surveys

Surveys conducted through the use of craft advisory committees or advisory committees for a particular occupational specialty are familiar ones to occupational education planners. These surveys have a long and honorable, for the most part, history of contributing to the development of specific programs at the local level. Despite this, they generally exhibit weaknesses that often make vulnerable programs that are developed from them.

Practices in conducting these surveys are highly variable, ranging from the use of formally structured surveys to quick subjective assessment made from the responses of company people who have been requested to state job vacancies by job titles. Too often the responses received are totally dependent upon the interpretations and judgments of the particular company individual contacted. This may be a personnel man in one company, a chief executive in another, and an operating official in a third. In most cases, the conception and methodology to be used by the company in making its projections are not stated; and it is a rare case when the company is requested to provide the rationale it has used in making its projections. In addition, the entire picture is often clouded by the fact that job titles ordinarily reflect specific company nomenclatures. And this, of course, tends to make the data received from one company incompatible with that received from another. Finally, it is inherent in the nature of these surveys that they tend to be concerned with the identification of immediate needs only.

Nothing in the foregoing is intended to suggest that surveys of this sort have no place in planning occupational education programs. It is difficult to envision an enduring situation in which there would be no need for such surveys. In some situations they do fulfill a need that cannot, at present at least, be met in any other way. In the absence of better methodology and data, such ad hoc surveys do identify job resources and training requirements and, in a limited way, fulfill an important function. Given the dynamics and variability of the economy we live with, it is difficult to foresee a time when special data-gathering operations would not be of particular value at specific times--especially at the level of local planning.

The point that needs to be made for the purposes of those involved in the work of Task Force I, however, is that surveys of this sort contribute little to the achievement of the ends sought by the overall Articulation-Coordination Project.

## Current Research and Developments

Ongoing research and experimentation in the field of employment needs forecasting hold the promise of providing much needed assistance to state and local educational planners in the very near future. As would be expected, the bulk of this work is being done by or under the auspices of the Bureau of Labor Statistics and the Bureau of Employment Security. The promise of assisting state and local planners lies in the fact the work being done is not directed toward the development and utilization of national data only, but includes major efforts to devise methodologies for use at state and local levels, provide instruction or familiarization in the techniques of employment forecasting, and furnish more data that are directly useful to state and local planners.

## The Industry-Occupational Matrix Technique

Those who have worked with employment data are familiar with this approach to the problem of presenting occupational information and projections. It has been used in a variety of studies in many areas of the country in recent years, including, for example, the one conducted in the Portland area by the Metropolitan Area Manpower Council in 1965. The advantages of having data broken out in a matrix of this kind are obvious to planners who have tried to work with information presented in the format of standard industrial classification tables, or with the usual state or county labor force tables.

Development of a valid technique for collecting and presenting employment data in an adequately detailed industry-occupational matrix would be of enormous value to the educational planner. But therein, of course, lies the problem: gathering valid data inputs and presenting them in a matrix that specifically points up training needs for identifiable occupations. The matrices that have been developed share one thing with the methods of reporting by standard industrial classifications and labor force tables: while they identify important trends in the employment-need picture, actual needs by occupation are obscure in the totals presented. It well may be that they are in there; but the data presented are simply not sufficiently detailed to permit identification.

Naturally, there are many reasons for the continuing difficulty in devising an effective industry-occupational matrix technique. Of these, the more prominent ones are: first, the complexity and subtle gradations that characterize the occupational structure make it difficult to construct a grid that has enough entries in either its caption or stub to reflect by itself the employment needs that exist or can be projected; second, it is difficult to include a sufficient number of variables in the technique; third, if the grid entries and variables are to be adequate, the technique requires a high degree of sophistication on the part of those who are involved in the development of the data; fourth, obtaining needed data-inputs at local and state levels is likely to be expensive and time-consuming; and fifth, at present there is a lack of manpower supply data for occupations other than professional and some highly skilled.

Despite these difficulties, important work to develop effective industry-occupational matrices is going on--and has been for a considerable time.

One of the more important, and probably the most sophisticated, of these efforts is one developed by the Bureau of Labor Statistics. It entails preparation of an economic model through compilation of the demand for each product of an industry, determination of the manpower requirements that are consistent with this demand for each industry, and, finally, development of an industry-occupational matrix. The BLS technicians have, over a period of something near sixteen years, painstakingly filled in the cells of a grid that has 116 industries in its caption and some 150 occupations in its stub. Out of this, they have developed what amounts to 116 industry manning tables, which, through the application of identified industrial and occupational trends, can be used to make long-range employment projections. Work of this kind certainly provides tools for analysis. It does not, however, provide the answers to the questions of where the training shall be given or how many workers are to be trained in the areas where it is given. It must be added that even this ambitious undertaking has suffered from the lack of manpower supply information, except for data concerning professional and highly-skilled occupations.

In spite of its imperfections, the industry-occupational matrix technique has been developed to the point where it can become a useful tool in long-range employment needs forecasting. The work that has been done has made it an effective technique at the national level; and it would seem to be a reasonable expectation that many elements of the technique utilized in developing national data can be effectively transferred to efforts at local and state levels. Experimental work directed to this end apparently is under way. Bureau of Employment Security personnel report that the industry-occupational matrix approach is a part of the research design of a comprehensive cooperative research project that has been underway since 1966. The research, known as Project VISION, is being conducted by the Wisconsin State Employment Service with technical assistance from the national office of the U.S. Employment Service. It has the ambitious objective of developing a model occupational information system for vocational education. A final report of this research activity is expected to be available soon.

With all its limitations, the matrix approach, in the judgment of the members of Task Force I, could be a valuable one for use in the presentation of employment information in Oregon. This is not to suggest that an instrument of the complexity of the BLS grid can or should be developed. However, a grid of far simpler design and incorporating fewer variables could be a valuable tool, along with other data, in the identification of needs for occupational education programs.

### The Unfilled Job Openings Technique

Ideally, of course, occupational education planners would have at their disposal up-to-date information on total current job opportunities at all times. Moreover, as indicated earlier in this report, the technology--but not the resources--needed to provide such data is at hand. Comprehensive reports of job vacancy statistics are available in a very few areas. These few were the result of a limited number of experimental surveys conducted by the State Employment agencies in cooperation with the U.S. Employment Service and the Bureau of Labor Statistics. To date, the program has not been expanded.

In the absence of complete data, the best available information on occupations for which workers are being sought in a state or area at any given time is the roster of unfilled job openings listed with employment offices. Experimental programs conducted within the past two years have provided evidence that these listings of unfilled job openings represent from one quarter to one third of the total job vacancies that are present in an area at any given time. The experiments also gave evidence that, with some exceptions, the unfilled openings are reasonably representative of the occupations in which there is an unmet demand for employees.

As would be expected, the experimental surveys also showed that the information developed is more useful in some occupational classifications than it is in others. They confirmed facts that are already well-known to those who work with employment data: Employment Service offices do not receive a significant part of job orders for professional occupations; and they receive virtually none for some industries where employment is obtained through union halls and apprenticeship programs.

In any case, the experimental findings have created a considerable interest in the development of a technique for determining needs for occupational education through compilation and examination of unfilled job openings in state and local areas.

The discovery of the sampling coverage and the representative nature of the unfilled job data led to the inclusion of an unfilled job openings approach to employment forecasting in Project VISION. The approach has been labeled as the unfilled job openings--Occupational Outlook Handbook technique. The label reflects the two most basic tools that are employed in the experimental technique; although from the sketchy information that is currently available, it appears that the technique also places the new edition (the third) of the Dictionary of Occupational Titles in an important role.

Basic steps in the prodecures apparently are to compile over a period of time a listing of reported unfilled job openings in an area, along with a roster of the openings that have been classified as hard-to-fill; compare the number and ratio of hard-to-fill openings with the total openings reported in an occupation over the time period; divide listing of occupations identified into categories of need; then to relate these long duration unfilled job openings to the universe of occupations they represent by projection of the job openings data to universe proportions; and, finally, to check these findings against the information that is available in the Occupational Outlook Handbook. The DOT is apparently the primary instrument utilized in the determination of the employment needs categories.

Obviously, application of this technique would not produce job information that would have the precision of the very sophisticated BLS matrix approach. However, even among occupational educators it is difficult to reach agreement upon the degree of precision that really is necessary in employment forecasting for program planning. Since virtually all programs require lead-time and a year or more of operating time, any forecast upon which the programs are based is always vulnerable.

If this experimental approach should prove to be a viable one for use in identifying valid employment needs, it would have a number of distinct advantages. Chief among these would be its relative simplicity, the short time that would be required to implement it, and the fact that no new kinds of information would be required.

In view of these possibilities, the members of Task Force I feel that this approach at least holds promise and should be seriously considered as a possible data device for inclusion in employment information work in Oregon.

Improving Coordination and Cooperation.

In addition to the experimental work outlined above, a number of specific efforts to work out improvements in the employment information base are either underway or planned for the immediate future.

Out of its work in long-range forecasting, the BLS has developed projections of national manpower requirements and supply to 1975 in several hundred occupations and industries. These data will be included in the publication, Tomorrow's Manpower Needs, soon to be available from the Government Printing Office. These, of course, will be national projections. However, the Bureau of Employment Security has work in process which is to result in a number of handbooks for projecting similar manpower data for states and areas. These are to be companion publications to the BLS volume. They are planned to provide detailed information on the use of various methodologies and data sources.

Also scheduled for publication in the near future is a publication growing out of work done in Project VISION, with assistance from the BES and the Office of Education. This volume, Vocational Education and Occupations includes an occupational clustering structure showing the relationship of vocational program areas to the Dictionary of Occupational Titles. The clustering structure will relate some 2,000 job titles to over 300 specific occupational education programs.

It will be noted that in most of the experimental work and other developments outlined above, there is increasing emphasis upon use of the third edition of the DOT. Although the third edition was published in 1966, conversion to its use has not yet been accomplished fully; and therefore, the potential its innovative occupational classification structure has for developing employment information is yet to be realized. Most future developments, in the judgment of Task Force I members, are likely to be centered upon the employment structure contained in the new DOT; and as work progresses in Oregon, it should, where appropriate, be related to the new edition.

## Summary of Task Force Suggestions.

Throughout the period of their involvement in this project, the personnel of Task Force I were confronted with three major characteristics of the employment data picture as it exists at present. We have sought to emphasize these in the preceding pages of this report. The characteristics are: (1) there is an enormous amount of employment data designed to serve a multitude of purposes available, but very little of it has been designed for use in occupational education planning; (2) developing employment data and projections for educational planning is a complex and difficult task, and the difficulty is not offset by a corresponding broad background of experience in the work; and (3) at present, and in the last few years, an impressive amount of activity is being directed toward the development of the required employment information. These characteristics combine to make the situation a very fluid one; and this cannot help but be reflected in the suggestions coming out of the work of the

Task Force. The suggestions are undoubtedly fewer, less specific, and more tenuous than they might be if the situation were characterized by greater stability and a more extensive background of experience.

In approximately the order in which they have been referred to in this section of the report, the suggestions of Task Force I are:

(1) That every effort be made to continue the cooperative relationships that have been established between the Oregon Board of Education and the State Department of Employment; and that there be a continued reliance by the Oregon Board of Education upon the State Department of Employment as the primary source of needed employment information.

(2) That, as soon as possible, additional resources be provided the agencies involved to make possible increased coordination and intensified efforts on the part of both agencies in the development of employment date for use in educational planning.

(3) That some adaptation of the industry-occupation matrix technique be developed for use in reporting and forecasting employment data in Oregon. Employment service personnel have demonstrated that the capability for producing such a matrix is at hand. For example, tables 1, 2, and 3 on pages 37, 38, and 39 show a matrix based upon data that have been gathered by the Department of Employment in recent years. The tables show an occupational mix by industry for the years 1960, 1964, and 1967. (The reader is cautioned that these tables are only illustrations and are not to be taken as necessarily valid reflection of the employment picture that existed in those years. They were drawn up through the use of projection techniques and are not the results of actual surveys. However, the data base was a real one and it is likely that the tables do approximate the non-agricultural employment situation.)

Table 1

STATE OF OREGON

## NON-AGRICULTURAL EMPLOYMENT 1960 -- OCCUPATIONAL MIX BY INDUSTRY

|  | Total | Prof. | Tech. | Mgr. | Cler. | Sales | Serv. & Misc. | Skilled | Semi-skilled | Un-skilled |
|---|---|---|---|---|---|---|---|---|---|---|
| Total | 509,200 | 53,770 | 10,310 | 40,050 | 81,290 | 31,390 | 65,310 | 77,590 | 85,730 | 63,760 |
| Construction | 26,100 | 320 | 490 | 2,050 | 1,380 | 140 | 80 | 12,450 | 4,730 | 4,460 |
| Manufacturing | 144,400 | 2,680 | 1,130 | 6,140 | 8,590 | 2,330 | 3,200 | 28,110 | 49,640 | 42,580 |
| Food, kindred Prod. | 21,100 | 250 | 120 | 1,390 | 1,970 | 600 | 680 | 3,730 | 5,530 | 6,830 |
| Lbr., Wood Prod. | 71,900 | 980 | 210 | 1,830 | 2,840 | 170 | 1,700 | 12,780 | 28,910 | 22,480 |
| Other Mfg. | 51,400 | 1,950 | 800 | 2,920 | 3,780 | 1,560 | 820 | 11,600 | 15,200 | 13,270 |
| Trans.-Comm.-Util. | 44,400 | 1,240 | 860 | 3,330 | 10,080 | 610 | 510 | 13,340 | 9,030 | 5,400 |
| Trade | 113,600 | 1,690 | 610 | 16,130 | 19,320 | 22,450 | 21,770 | 11,740 | 13,220 | 6,670 |
| Fin., Ins., R.E. | 20,700 | 300 | 180 | 4,120 | 10,280 | 4,570 | 1,000 | 220 | 10 | 20 |
| Serv., Misc. | 64,700 | 11,770 | 2,650 | 4,660 | 12,540 | 1,110 | 21,640 | 4,370 | 4,650 | 1,310 |
| Government | 95,300 | 35,770 | 4,390 | 3,620 | 19,100 | 180 | 17,110 | 7,360 | 4,450 | 3,320 |
|  |  |  |  | Percent of Total Employment in the Industry |  |  |  |  |  |  |
| *Total | 100.0 | 10.56 | 2.02 | 7.87 | 15.96 | 6.16 | 12.83 | 15.24 | 16.84 | 12.52 |
| Construction | 5.1 | 1.23 | 1.88 | 7.85 | 5.30 | 0.53 | 0.31 | 47.68 | 18.14 | 17.08 |
| *Manufacturing | 28.4 | 1.85 | 0.78 | 4.25 | 5.95 | 1.61 | 2.22 | 19.47 | 34.38 | 29.49 |
| Food, kindred Prod. | (4.2) | 1.20 | 0.57 | 6.58 | 9.34 | 2.85 | 3.20 | 17.69 | 26.21 | 32.36 |
| Lbr., Wood Prod. | (14.1) | 1.36 | 0.29 | 2.54 | 3.95 | 0.24 | 2.37 | 17.77 | 40.21 | 31.27 |
| Other Mfg. | (10.1) | 2.81 | 1.56 | 5.67 | 7.36 | 3.04 | 1.59 | 22.57 | 29.57 | 25.81 |
| Trans.-Comm.-Util. | 8.7 | 2.80 | 1.94 | 7.51 | 22.70 | 1.37 | 1.15 | 30.04 | 20.33 | 12.16 |
| Trade | 22.3 | 1.49 | 0.54 | 14.20 | 17.01 | 19.76 | 19.16 | 10.33 | 11.64 | 5.87 |
| Fin., Ins., R.E. | 4.1 | 1.46 | 0.87 | 19.89 | 49.68 | 22.09 | 4.83 | 1.04 | 0.04 | 0.10 |
| Serv. & Misc. | 12.7 | 18.20 | 4.09 | 7.20 | 19.39 | 1.72 | 33.44 | 6.75 | 7.18 | 2.03 |
| Government | 18.7 | 37.53 | 4.61 | 3.80 | 20.04 | 0.19 | 17.95 | 7.72 | 4.67 | 3.49 |

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*Total percent was computed after the occupational groups by Industry were summed
Source: Dept. of Employment, Research & Statistics Division

## Table 2

## STATE OF OREGON

## NON-AGRICULTURAL EMPLOYMENT 1964 -- OCCUPATIONAL MIX BY INDUSTRY

| | Total | Prof. | Tech. | Mgr. | Cler. | Sales | Serv. & Misc. | Skilled | Semi-skilled | Un-skilled |
|---|---|---|---|---|---|---|---|---|---|---|
| Total | 573,000 | 62,690 | 14,200 | 42,770 | 93,590 | 39,710 | 74,850 | 85,520 | 92,070 | 67,600 |
| Construction | 29,800 | 290 | 520 | 2,210 | 1,620 | 300 | 90 | 15,080 | 4,850 | 4,840 |
| Manufacturing | 151,700 | 2,840 | 1,460 | 6,660 | 9,750 | 3,010 | 3,000 | 30,240 | 51,460 | 43,280 |
| Food,kindred Prod. | 20,500 | 240 | 110 | 1,430 | 2,050 | 720 | 570 | 3,460 | 4,930 | 6,990 |
| Lbr.,Wood Prod. | 73,200 | 860 | 240 | 2,010 | 2,850 | 150 | 1,620 | 12,190 | 30,380 | 22,900 |
| Other Mfg. | 58,000 | 1,740 | 1,110 | 3,220 | 4,850 | 2,140 | 810 | 14,590 | 16,150 | 13,390 |
| Trans.-Comm.-Util. | 44,600 | 1,270 | 980 | 3,210 | 10,570 | 820 | 570 | 12,480 | 9,510 | 5,190 |
| Trade | 128,600 | 1,840 | 840 | 16,140 | 20,600 | 27,850 | 23,050 | 13,850 | 15,530 | 8,900 |
| Fin.,Ins., R.E. | 26,300 | 330 | 270 | 5,070 | 12,970 | 6,190 | 1,120 | 260 | 10 | 30 |
| Serv., Misc. | 80,700 | 14,470 | 4,310 | 5,370 | 15,710 | 1,320 | 26,570 | 5,550 | 5,750 | 1,650 |
| Government | 111,300 | 41,600 | 5,820 | 4,110 | 22,370 | 220 | 20,450 | 8,060 | 4,960 | 3,710 |
| | | | | | *Percent of Total Employment in the Industry* | | | | | |
| *Total | 100.0 | 10.94 | 2.48 | 7.46 | 16.33 | 6.93 | 13.06 | 14.93 | 16.07 | 11.80 |
| Construction | 5.2 | 0.98 | 1.74 | 7.40 | 5.44 | 1.01 | 0.29 | 50.61 | 16.28 | 16.25 |
| *Manufacturing | 26.5 | 1.87 | 0.96 | 4.39 | 6.43 | 1.99 | 1.98 | 19.93 | 33.92 | 28.53 |
| Food,kindred Prod. | (3.6) | 1.19 | 0.54 | 6.97 | 10.00 | 3.50 | 2.81 | 16.87 | 24.05 | 34.09 |
| Lbr.,Wood Prod. | (12.8) | 1.17 | 0.33 | 2.74 | 3.90 | 0.20 | 2.21 | 16.66 | 41.50 | 31.29 |
| Other Mfg. | (10.1) | 3.00 | 1.91 | 5.55 | 8.37 | 3.70 | 1.39 | 25.16 | 27.84 | 23.08 |
| Trans.-Comm.-Util. | 7.8 | 2.86 | 2.19 | 7.19 | 23.69 | 1.83 | 1.28 | 27.99 | 21.33 | 11.64 |
| Trade | 22.4 | 1.43 | 0.65 | 12.55 | 16.02 | 21.66 | 17.92 | 10.77 | 12.08 | 6.92 |
| Fin.,Ins., R.E. | 4.6 | 1.45 | 1.02 | 19.29 | 49.33 | 23.54 | 4.24 | 0.99 | 0.05 | 0.09 |
| Serv., Misc. | 14.1 | 17.93 | 5.34 | 6.65 | 19.47 | 1.64 | 32.92 | 6.88 | 7.13 | 2.04 |
| Government | 19.4 | 37.38 | 5.23 | 3.69 | 20.10 | 0.20 | 18.37 | 7.24 | 4.46 | 3.33 |

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*Total percent was computed after the occupational groups by Industry were summed
Source: Dept. of Employment, Research & Statistics Division

Table 3

STATE OF OREGON

NON-AGRICULTURAL EMPLOYMENT 1967 -- OCCUPATIONAL MIX BY INDUSTRY

| | Total | Prof. | Tech. | Mgr. | Cler. | Sales | Serv. & Misc. | Skilled | Semi-skilled | Un-skilled |
|---|---|---|---|---|---|---|---|---|---|---|
| Total | 651,100 | 73,980 | 18,570 | 46,480 | 108,700 | 49,540 | 86,540 | 95,290 | 99,480 | 72,520 |
| Construction | 30,300 | 240 | 490 | 2,140 | 1,680 | 420 | 90 | 15,990 | 4,510 | 4,740 |
| Manufacturing | 164,200 | 3,230 | 1,940 | 7,570 | 11,610 | 4,570 | 2,900 | 34,100 | 53,470 | 44,810 |
| Food,kindred Prod. | 23,000 | 260 | 120 | 1,630 | 2,360 | 1,460 | 560 | 3,630 | 4,980 | 8,000 |
| Lbr.,Wood Prod. | 69,100 | 710 | 250 | 2,000 | 2,670 | 120 | 1,440 | 10,920 | 29,350 | 21,640 |
| Other Mfg. | 72,100 | 2,260 | 1,570 | 3,940 | 6,580 | 2,990 | 900 | 19,550 | 19,140 | 15,170 |
| Trans.-Comm.-Util. | 47,800 | 1,390 | 1,140 | 3,320 | 11,680 | 1,040 | 650 | 12,640 | 10,560 | 5,380 |
| Trade | 147,000 | 2,040 | 1,070 | 16,640 | 22,460 | 33,930 | 24,980 | 16,320 | 18,240 | 11,320 |
| Fin.,Ins., R.E. | 31,500 | 450 | 350 | 5,930 | 15,460 | 7,760 | 1,200 | 300 | 20 | 30 |
| Serv., Misc. | 98,600 | 17,490 | 6,180 | 6,140 | 19,260 | 1,560 | 32,090 | 6,870 | 7,000 | 2,010 |
| Government | 131,700 | 49,140 | 7,400 | 4,740 | 26,550 | 260 | 24,630 | 9,070 | 5,680 | 4,230 |
| | | | | | | | | | | |
| | | | | Percent of Total Employment in the Industry | | | | | | |
| *Total | 100.0 | 11.36 | 2.85 | 7.14 | 16.69 | 7.61 | 13.29 | 14.64 | 15.28 | 11.14 |
| Construction | 4.7 | 0.79 | 1.63 | 7.06 | 5.55 | 1.38 | 0.30 | 52.79 | 14.88 | 15.65 |
| *Manufacturing | 25.2 | 1.97 | 1.18 | 4.61 | 7.07 | 2.78 | 1.77 | 20.77 | 32.56 | 27.29 |
| Food,kindred Prod. | (3.5) | 1.13 | 0.51 | 7.09 | 10.26 | 6.34 | 2.42 | 15.80 | 21.68 | 34.77 |
| Lbr.,Wood Prod. | (10.6) | 1.03 | 0.36 | 2.89 | 3.86 | 0.17 | 2.09 | 15,81 | 42.48 | 31.32 |
| Other Mfg. | (11.1) | 3.14 | 2.17 | 5.47 | 9.13 | 4.15 | 1.24 | 27.11 | 26.55 | 21.04 |
| Trans.-Comm.-Util. | 7.3 | 2.91 | 2.38 | 6.95 | 24.44 | 2.17 | 1.37 | 26.45 | 22.08 | 11.25 |
| Trade | 22.6 | 1.39 | 0.73 | 11.32 | 15.28 | 23.08 | 16.99 | 11.10 | 12.41 | 7.70 |
| Fin.,Ins., R.E. | 4.8 | 1.44 | 1.13 | 18.84 | 49.07 | 24.63 | 3.80 | 0.94 | 0.07 | 0.09 |
| Serv., Misc. | 15.2 | 17.74 | 6.27 | 6.23 | 19.53 | 1.58 | 32.54 | 6.97 | 7.10 | 2.04 |
| Government | 20.2 | 37.31 | 5.62 | 3.60 | 20.16 | 0.20 | 18.70 | 6.89 | 4.31 | 3.21 |

---

*Total percent was computed after the occupational groups by Industry were summed
Source: Dept. of Employment, Research & Statistics Division

The entries in the heading of the matrix are based, of course, on the old edition of the DOT and the entries in the stub are those used in making up the labor force tables produced by the State Department of Employment. Members of Task Force I are not suggesting that these are the entries that should be in the heading or the stub of an industry-occupational matrix. They have been used here simply to illustrate the suggested approach.

Task Force I is not suggesting that a matrix as sophisticated as that developed by the BLS can or should be developed in Oregon. However, even though a simpler matrix is likely to have too few cells to reflect an intricate breakout of occupational data, they do feel that the approach would be useful in the identification of sectors of the employment structure where employment needs indicate occupational training programs are desirable. In addition since work is being done by Department of Employment agencies for implementation at state and local levels, development of the suggested matrix for Oregon might coincide in a desirable way.

(4) That if some variation of the matrix approach is developed it be tied as closely as possible to the employment classification structure of the third edition of the DOT.

Such a matrix could be made up of the entries in the heading and the stub of the sample matrix shown in table 4 on page 41. Again this is not to suggest that the entries necessarily should be those shown. For example, in the illustration included, the professional, technical and managerial classifications are placed under one entry in the heading. Obviously these would have to be broken out into separate heading entries. Other refinements would doubtless be developed by those who actually

## Table 4

## EMPLOYMENT 19__ -- INDUSTRY BY OCCUPATION

______________ County

| | Total | Prof. Tech. Mgr. | Cler. | Sales | Serv. | Farming Fishery Forestry Related | Processing | Mach. Trades | Bench Work | Structural Work | Misc. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Construction | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Manufacturing | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Food & kindred | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Lbr & Wood Prod | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Other mfg | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Trans-Comm-Util | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Trade | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Finance, Ins, RE | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Service & Misc. | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Government | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |

Distribution by Percent of Total in Industry

| | Total | Prof. Tech. Mgr. | Cler. | Sales | Serv. | Farming Fishery Forestry Related | Processing | Mach. Trades | Bench Work | Structural Work | Misc. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Construction | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Manufacturing | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Food & kindred | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Lbr & Wood Prod | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Other mfg | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Trans-Comm-Util | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Trade | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Finance, Ins, RE | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Service & Misc. | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Government | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |

produce a matrix for use in Oregon.

(5) That if the experimental programs utilizing the unfilled job openings - Occupational Outlook Handbook technique continues to show evidence that it is effective, consideration be given to incorporating it into a systematic program of employment data collection and dissemination in Oregon.

(6) That in so far as possible, employment data be presented, particularly if a matrix can be utilized, by county as a minimum breakdown; and that it also be reported by community college area districts. Where areas have not been included in a community college area district, the data could be reported separately or included in the most logical area district.

# SECTION III

## POPULATION DATA

This section is devoted entirely to population data for the State of Oregon. It includes comparative data for the state and for the nation as a whole, population change by counties in the 1960's, population by age groups--with projections, and selected highlights of population trends in the state.

The reader is again reminded that the data presented in Sections III through VI are left to the interpretations of the user. There are far too many possible combinations of the data, and implications that may be seen in certain situations or geographical locations, to permit appropriate analysis in the text of the report.

Figure 1

POPULATION - OREGON AND THE UNITED STATES, 1850-1960

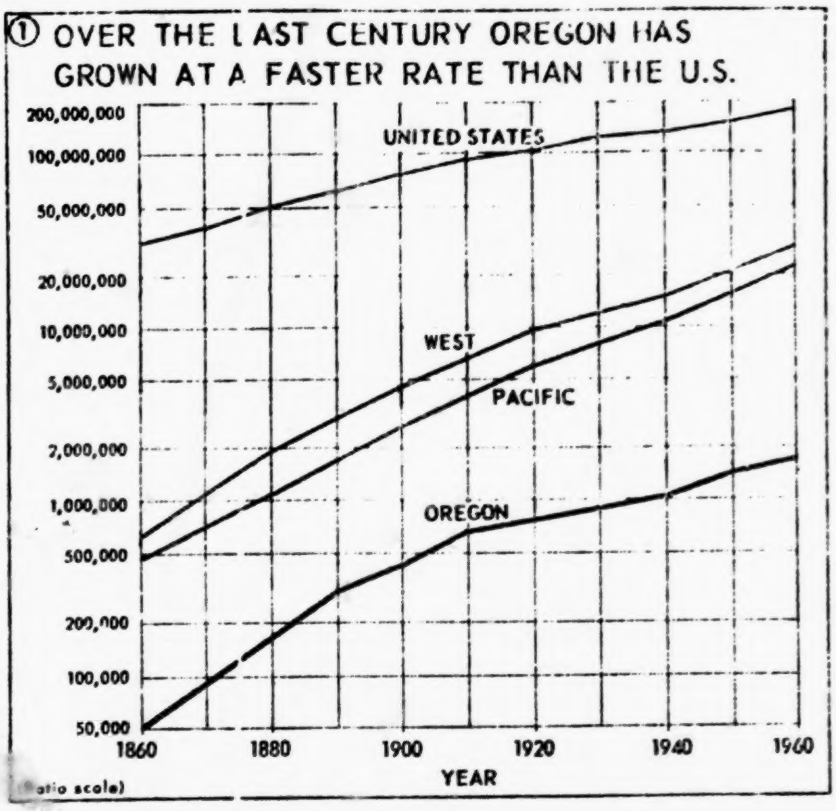

Table 5

POPULATION - OREGON AND THE UNITED STATES, 1850-1967

| Year | Oregon (Thousands) | United States (Millions) |
|---|---|---|
| 1850 | 13.3 | 23.2 |
| 1860 | 52.5 | 31.4 |
| 1870 | 90.9 | 38.6 |
| 1880 | 174.8 | 50.2 |
| 1890 | 317.7 | 62.9 |
| 1900 | 413.5 | 76.0 |
| 1910 | 672.8 | 92.0 |
| 1920 | 783.4 | 105.7 |
| 1930 | 953.8 | 122.8 |
| 1940 | 1,089.7 | 131.7 |
| 1950 | 1,521.3 | 150.7 |
| 1960 | 1,768.7 | 179.3 |
| *1967 | 2,006.3 | 200.0 |

Sources: Bureau of the Census
*Oregon Economic Statistics - 1968

Table 6

POPULATION CHANGE, BY SELECTED STATES AND REGIONS, 1910 - 1960
(Thousands)

| State or Region | 1910 | 1920 | 1930 | 1940 | 1950 | 1960 | % change 1940-1960 |
|---|---|---|---|---|---|---|---|
| Pacific States | | | | | | | |
| Oregon | 673 | 783 | 954 | 1090 | 1521 | 1769 | + 62 % |
| Washington | 1142 | 1357 | 1563 | 1736 | 2379 | 2853 | 64 |
| California | 2378 | 3427 | 5677 | 6907 | 10586 | 15717 | 128 |
| Mountain States | | | | | | | |
| Montana | 376 | 549 | 538 | 559 | 591 | 675 | 21 |
| Idaho | 326 | 432 | 445 | 525 | 589 | 667 | 27 |
| Wyoming | 146 | 194 | 226 | 251 | 291 | 330 | 31 |
| Colorado | 799 | 940 | 1036 | 1123 | 1325 | 1754 | 56 |
| New Mexico | 327 | 360 | 423 | 582 | 681 | 951 | 79 |
| Arizona | 204 | 334 | 436 | 499 | 750 | 1302 | 160 |
| Utah | 373 | 449 | 508 | 550 | 689 | 891 | 62 |
| Nevada | 82 | 77 | 91 | 110 | 160 | 285 | 159 |
| Selected States | | | | | | | |
| Oklahoma | 1657 | 2028 | 2396 | 2336 | 2233 | 2328 | 0 |
| Texas | 3897 | 4663 | 5825 | 6415 | 7711 | 9580 | 49 |
| Connecticut | 1115 | 1381 | 1607 | 1709 | 2007 | 2535 | 48 |
| New York | 9114 | 10385 | 12588 | 13479 | 14830 | 16782 | 24 |
| Illinois | 5639 | 6485 | 7631 | 7987 | 8712 | 10081 | 28 |
| Florida | 753 | 968 | 1468 | 1897 | 2771 | 4952 | 160 |
| Mountain States | 2634 | 3336 | 3702 | 4150 | 5075 | 6855 | 65 |
| Pacific States | 4449 | 5878 | 8622 | 10229 | 15115 | 21198 | 108 |
| United States | 92228 | 106022 | 123202 | 132165 | 151326 | 179323 | 36% |

Source: Statistical Abstract of the United States, 1963

Table 7

POPULATION GROWTH IN OREGON AND THE UNITED STATES
ACTUAL AND PROJECTED FOR SELECTED YEARS
1950 - 1980

| Year (1) | Oregon (in thousands) (2) | Percent Gain (3) | United States (in thousands) (4) | Percent Gain (5) |
|---|---|---|---|---|
| 1950 | 1,516[a] | --- | 150,216[c] | --- |
| 1960 | 1,769[b] | 16.7 | 178,467[c] | 18.8 |
| 1965 | 1,948[b] | 10.1 | 193,795[d] | 8.6 |
| 1970 | 2,113[b] | 8.5 | 206,342[d] | 6.1 |
| 1975 | 2,329[b] | 10.2 | 222,802[d] | 8.0 |
| 1980 | 2,595[b] | 11.4 | 242,307[d] | 8.0 |
| 1960-1980 Total Projected Gain | 826 | 46.7 | 63,840 | 35.8 |

[a] U.S. Department of Commerce, Bureau of the Census, Census of Population: 1960 ("Characteristics of the Population," Part 39, "Oregon") V. I, p. 173

[b] Population and Household Trends: 1960-1985 (Pacific Northwest Bell Telephone Company, March 1967)

[c] U.S. Department of Commerce, Bureau of the Census, op.cit. (Final Report PC (1) - LC - Detailed Characteristics - United States Summary), p. 358

[d] U.S. Department of Commerce, Bureau of the Census, "Current Population Reports," Population Estimates (October 3, 1967), Series P-25, No. 375, page 18, Series I-B Projections.

Source: "Higher Education Student Enrollment Distributions and Trends in Oregon. Fall 1967," The State of Oregon Educational Coordinating Council, May 1968

Table 8

## POPULATION BY COUNTY 1960-1967

| County | 1960 | July 1967 | Change | Percent Change |
|---|---|---|---|---|
| Baker | 17,295 | 15,800 | -1,495 | -17 |
| Benton | 39,165 | 47,000 | 7,835 | 20 |
| Clackamas | 113,038 | 142,000 | 28,962 | 25 |
| Clatsop | 27,380 | 27,800 | 420 | 1 |
| Columbia | 22,379 | 25,000 | 2,621 | 11 |
| Coos | 54,955 | 52,200 | 2,755 | - 5 |
| Crook | 9,430 | 8,900 | - 530 | - 5 |
| Curry | 13,983 | 12,500 | -1,483 | -10 |
| Deschutes | 23,100 | 27,630 | 4,530 | 19 |
| Douglas | 68,458 | 75,000 | 6,542 | 9 |
| Gilliam | 3,069 | 3,050 | - 19 | -.6 |
| Grant | 7,726 | 7,350 | - 376 | - 4 |
| Harney | 6,744 | 7,180 | 436 | 6 |
| Hood River | 13,395 | 14,300 | 905 | 6 |
| Jackson | 73,962 | 95,000 | 21,038 | 28 |
| Jefferson | 7,130 | 10,200 | 3,070 | 43 |
| Josephine | 29,917 | 36,500 | 6,583 | 22 |
| Klamath | 47,475 | 48,000 | 525 | 1 |
| Lake | 7,158 | 6,200 | - 958 | -13 |
| Lane | 162,890 | 204,000 | 41,110 | 25 |
| Lincoln | 24,635 | 23,550 | -1,085 | - 4 |
| Linn | 58,867 | 67,000 | 8,133 | 13 |
| Malheur | 22,764 | 25,800 | 3,036 | 13 |
| Marion | 120,888 | 149,500 | 28,612 | 23 |
| Morrow | 4,871 | 4,570 | - 301 | - 6 |
| Multnomah | 522,801 | 555,700 | 32,899 | 6 |
| Polk | 26,523 | 33,700 | 7,177 | 27 |
| Sherman | 2,446 | 3,100 | 654 | 26 |
| Tillamook | 18,955 | 16,000 | -2,955 | -15 |
| Umatilla | 44,352 | 43,800 | - 552 | - 1 |
| Union | 18,180 | 17,900 | - 280 | - 1 |
| Wallowa | 7,102 | 6,000 | -1,102 | -15 |
| Wasco | 20,205 | 23,400 | 3,195 | 15 |
| Washington | 92,237 | 128,000 | 35,763 | 38 |
| Wheeler | 2,722 | 1,730 | - 992 | -36 |
| Yamhill | 32,478 | 41,000 | 8,522 | 26 |

Source: "The Oregon Cooperative Manpower Plan. Fiscal Year 1969"
Oregon State Manpower Coordinating Committee, June 1968

Table 9

POPULATION, STATE OF OREGON, BY AGE GROUP, APRIL 1, 1960

| Age Group | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|---|
| 0-4 | 185,454 | 191,000 | 186,600 | 240,400 | 286,700 | 326,200 |
| 5-9 | 188,225 | 191,800 | 196,200 | 189,700 | 247,100 | 293,600 |
| 10-14 | 171,610 | 194,800 | 197,700 | 202,800 | 196,700 | 254,500 |
| 15-19 | 130,131 | 183,200 | 205,200 | 209,100 | 215,300 | 209,600 |
| 20-24 | 96,452 | 144,300 | 195,700 | 218,800 | 224,100 | 231,000 |
| 25-29 | 95,646 | 106,000 | 152,600 | 204,600 | 228,500 | 234,300 |
| 30-34 | 107,932 | 101,600 | 111,300 | 158,200 | 210,500 | 234,700 |
| 35-39 | 118,527 | 111,600 | 105,000 | 115,000 | 162,000 | 214,200 |
| 40-44 | 116,883 | 120,800 | 113,700 | 107,500 | 117,800 | 164,600 |
| 45-49 | 114,227 | 117,500 | 121,200 | 114,600 | 108,900 | 119,200 |
| 50-54 | 99,601 | 112,200 | 115,500 | 119,500 | 113,300 | 108,000 |
| 55-59 | 85,442 | 95,700 | 108,000 | 111,500 | 115,600 | 110,000 |
| 60-64 | 74,904 | 79,800 | 89,600 | 101,500 | 105,300 | 109,600 |
| 65-69 | 66,994 | 67,300 | 72,100 | 81,300 | 92,400 | 96,300 |
| 70-74 | 53,562 | 56,800 | 57,700 | 62,200 | 70,500 | 80,500 |
| 75-79 | 34,870 | 41,000 | 44,300 | 45,500 | 49,500 | 56,400 |
| 80 & over | 28,227 | 33,000 | 40,800 | 46,800 | 50,800 | 55,700 |
| ALL AGES | 1,768,687 | 1,948,400 | 2,113,200 | 2,329,000 | 2,595,000 | 2,898,400 |

Source: Population and Household Trends: 1960-1985
(Pacific Northwest Bell Telephone Company, March 1967)

## Table 10

## OREGON PROJECTED CENSUS FOR 1968 & 1970 BY AGE 5-18

| Age | 1966* | 1968 | 1970 |
|---|---|---|---|
| 5 | 38,363 | 35,452 | 33,512 |
| 6 | 41,203 | 40,154 | 36,157 |
| 7 | 39,831 | 41,024 | 37,866 |
| 8 | 40,659 | 42,279 | 41,150 |
| 9 | 41,312 | 40,713 | 41,869 |
| 10 | 41,380 | 41,525 | 43,112 |
| 11 | 41,251 | 42,028 | 41,348 |
| 12 | 41,670 | 42,283 | 42,368 |
| 13 | 42,103 | 42,174 | 42,906 |
| 14 | 41,176 | 42,194 | 42,761 |
| 15 | 38,933 | 42,478 | 42,495 |
| 16 | 38,281 | 41,389 | 42,346 |
| 17 | 36,573 | 37,964 | 41,348 |
| 18 | 33,267 | 34,387 | 37,126 |
| 5-13 | 367,772 | 367,632 | 360,288 |
| 14-18 | 188,230 | 198,412 | 206,076 |
| Total | 556,002 | 566,044 | 566,364 |

*Actual figures as used in computing the appropriation for the Basic School Support Fund

Source: Oregon Board of Education
Financial Services Division
Research and School Finance

Table 11

## OREGON POPULATION TRENDS - SELECTED HIGHLIGHTS AND COMPARISONS

| Population | Oregon Number or % | Oregon Rank in 50 States | Number or % range | United States Average |
|---|---|---|---|---|
| 1. Provisional estimates of total resident population 7-1-67 | 1,999,000 | 30 | 19,163,000<br>Calif.<br>273,000<br>Alaska | 197,884,000 |
| 2. Percent change in total resident population 4-1-60 to 7-1-67 | 13.0 | 15 | Nevada<br>55.8%<br>Wyoming<br>-4.6% | (18-19)<br>10.4% |
| 3. Net total migration rate 1960-66 (per 100 of period population) | +4.9 | 8 | Nevada<br>29.8<br>Wyoming<br>-12.7 | +1.1 |
| 4. Estimated school age population (5-17) 7-1-67 | 515,000 | 31 | 4,870,000<br>Calif.<br>84,000<br>Alaska | 51,584,000 |
| 5. Estimated school age population (5-17) as % of total resident population 1967 | 25.8<br>(Arkansas same rank) | 36 | New Mex.<br>31.4<br>New York<br>23.6 | 26.1 |
| 6. Estimated percent of change in school age population (5-17) 1966-67 | 1.2<br>(Kansas same rank) | 28 | Alaska<br>6.3%<br>W. Virginia<br>-1.3% | 1.5 |
| 7. Percent of population aged 21-64, 1966 | 49.7<br>(N. Carolina same rank) | 13 | Nevada<br>52.4%<br>New Mex.<br>44.6 | 49.5 |
| 8. Number of school age children (5-17) per 100 adults aged 21-64 in 1966 | 52 | 36 | New Mex.<br>69<br>New York<br>45 | 52 |

Table 11 (Continued)

| Population | Oregon Number or % | Oregon Rank in 50 States | Number or % range | United States Average |
|---|---|---|---|---|
| 9. Percent of population aged 65 or older 1966 | 10.5 | 16 | Iowa<br>12.6%<br>Alaska<br>2.6% | 9.4 |
| 10. Percent increase in population 65 years of age & older 4-1-60 to 7-1-66 | 12.2<br>(New York same rank) | 16 | Arizona<br>36.3%<br>Vermont<br>0.6% | 11.5 |
| 11. Number of live births per 1,000 population 1966 | 16.8<br>(Washington same rank) | 3 | Kansas<br>15.5<br>Alaska<br>24.0 | 18.5 |
| 12. Population per square mile 1967 | 21 | 38 | New Jersey<br>931<br>Alaska<br>under 1 | 56 |
| 13. Percent of population that is urban, 12-30-66 | 62.8 | 29 | New Jersey<br>88.0%<br>N. Dakota<br>38.5% | 70.6 |

Source: Rankings of the States 1968 - Research Division NEA, pages 5, 6, 7

# SECTION IV

# STUDENT POPULATION DATA

The data in this section deal primarily with the in-school population and projections of enrollments. The section includes past, current, and projected enrollment data for all grade levels, including community college. Other information concerns numbers and percentages of high school graduates for the State and each of the counties, percentage of enrollment change by age level in each county, and attendance and graduate projections for each of the community colleges.

## Table 12

## PERCENT OF NINTH GRADE CLASS WHICH GRADUATED FROM HIGH SCHOOL

| Class (1) | Graduated (2) | Class (3) | Graduated (4) | Class (5) | Graduated (6) |
|---|---|---|---|---|---|
| 1952 | 63.8% | 1957 | 69.9% | 1962 | 77.5% |
| 1953 | 66.0 | 1958 | 71.2 | 1963 | 78.2 |
| 1954 | 66.4 | 1959 | 71.7 | 1964 | 80.8 |
| 1955 | 67.9 | 1960 | 73.2 | 1965 | 82.6 |
| 1956 | 69.6 | 1961 | 76.0 | 1966 | 80.9 |
|  |  |  |  | 1967 | 82.0 |

Source: "Higher Education Student Enrollment Distributions and Trends in Oregon. Fall 1967," The State of Oregon Educational Coordinating Council, May 1968

## Table 13

## NUMBER OF PUBLIC HIGH SCHOOL GRADUATES BY COUNTY

| County (1) | No. of High School Graduates June 1967 (2) | Percent of Total High School Graduates (3) |
|---|---|---|
| Baker | 244 | .84 |
| Benton | 671 | 2.30 |
| Clackamas | 2,337 | 8.03 |
| Clatsop | 345 | 1.19 |
| Columbia | 550 | 1.89 |
| Coos | 813 | 2.79 |
| Crook | 138 | .47 |
| Curry | 204 | .70 |
| Deschutes | 426 | 1.46 |
| Douglas | 1,100 | 3.78 |
| Gilliam | 44 | .15 |
| Grant | 115 | .40 |
| Harney | 106 | .36 |
| Hood River | 235 | .81 |
| Jackson | 1,422 | 4.89 |
| Jefferson | 142 | .49 |
| Josephine | 563 | 1.93 |
| Klamath | 691 | 2.37 |
| Lake | 105 | .36 |
| Lane | 2,982 | 10.24 |
| Lincoln | 367 | 1.26 |
| Linn | 1,062 | 3.65 |
| Malheur | 391 | 1.34 |
| Marion | 2,080 | 7.15 |
| Morrow | 73 | .25 |
| Multnomah | 7,070 | 24.29 |
| Polk | 338 | 1.16 |
| Sherman | 61 | .21 |
| Tillamook | 265 | .91 |
| Umatilla | 759 | 2.61 |
| Union | 270 | .93 |
| Wallowa | 116 | .40 |
| Wasco | 346 | 1.19 |
| Washington | 1,981 | 6.80 |
| Wheeler | 38 | .13 |
| Yamhill | 661 | 2.27 |
| Total | 29,111 | |

Source: "Higher Education Student Enrollment Distributions and Trends in Oregon. Fall 1967," The State of Oregon Educational Coordinating Council, May 1968

Table 14

ANNUAL SCHOOL CENSUS FOR 1960, 1966 BY COUNTY

(COMPARISONS BY PERCENTAGE CHANGE)

| Age | Sex | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 198 | 174 | 199 | 165 | 201 | 225 | 178 | 173 | 157 | 182 | 169 | 197 | 200 | 170 |
| | G | 182 | 169 | 191 | 181 | 174 | 184 | 184 | 164 | 189 | 161 | 159 | 161 | 177 | 179 |
| BAKER | Total | 380 | - 343 | 390 | -346 | 375 | 409 | 362 | -337 | 346 | - 343 | 328 | 358 | 377 | - 349 |
| Percent Change | | | - 9% | | - 11% | | 25% | | - 6% | | - 1% | | 6% | | - 7% |
| | B | 411 | 457 | 415 | 442 | 382 | 450 | 383 | 467 | 362 | 459 | 364 | 442 | 347 | 432 |
| | G | 394 | 438 | 396 | 421 | 327 | 410 | 346 | 443 | 363 | 444 | 341 | 413 | 370 | 458 |
| BENTON | Total | 805 | 895 | 811 | 863 | 709 | 860 | 729 | 910 | 725 | 903 | 705 | 855 | 717 | 890 |
| Percent Change | | | 11% | | 6% | | 21% | | 24% | | 24% | | 21% | | 25% |
| | B | 1205 | 1654 | 1202 | 1700 | 1226 | 1711 | 1179 | 1717 | 1159 | 1711 | 1159 | 1732 | 1289 | 1746 |
| | G | 1236 | 1495 | 1196 | 1615 | 1135 | 1670 | 1065 | 1640 | 1126 | 1609 | 1077 | 1631 | 1228 | 1691 |
| CLACKAMAS | Total | 2441 | 3149 | 2398 | 3315 | 2361 | 3381 | 2244 | 3357 | 2285 | 3320 | 2236 | 3363 | 2517 | 3437 |
| Percent Change | | | 29% | | 38% | | 43% | | 49% | | 46% | | 51% | | 36% |
| | B | 280 | 238 | 282 | 265 | 261 | 238 | 243 | 273 | 280 | 251 | 279 | 240 | 311 | 281 |
| | G | 267 | 195 | 263 | 221 | 272 | 269 | 271 | 229 | 246 | 234 | 261 | 206 | 276 | 221 |
| CLATSOP | Total | 547 | 433 | 545 | 486 | 533 | - 507 | 514 | - 502 | 526 | -485 | 540 | - 446 | 587 | - 502 |
| Percent Change | | | 20% | | 10% | | - 4% | | - 2% | | - 7% | | - 17% | | - 14% |
| | B | 262 | 284 | 284 | 266 | 298 | 294 | 253 | 307 | 282 | 305 | 246 | 318 | 292 | 311 |
| | G | 220 | 290 | 227 | 297 | 272 | 275 | 234 | 284 | 248 | 271 | 253 | 270 | 260 | 262 |
| COLUMBIA | Total | 482 | 574 | 511 | 563 | 570 | - 569 | 487 | 591 | 530 | 576 | 499 | 588 | 552 | 573 |
| Percent Change | | | 19% | | 11% | | -.17% | | 21% | | 8% | | 17% | | 3% |
| | B | 683 | 627 | 712 | 626 | 669 | 644 | 622 | 723 | 610 | 625 | 639 | 607 | 665 | 646 |
| | G | 665 | 559 | 682 | 623 | 650 | 614 | 607 | 600 | 629 | 616 | 554 | 569 | 625 | 616 |
| COOS | Total | 1348 | - 1186 | 1394 | -1249 | 1319 | -1258 | 1229 | 1323 | 1239 | 1241 | 1193 | -1176 | 1290 | - 1262 |
| Percent Change | | | - 12% | | - 10% | | - 5% | | 8% | | .16% | | - 1% | | - 2% |

Table 14 (Continued)

| Age | Sex | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 112 | 122 | 115 | 89 | 127 | 122 | 147 | 106 | 121 | 107 | 113 | 107 | 129 | 108 |
| | G | 124 | 110 | 118 | 87 | 98 | 100 | 104 | 103 | 99 | 114 | 136 | 98 | 125 | 102 |
| CROOK | Total | 236 | -232 | 233 | -176 | 225 | -222 | 251 | -209 | 220 | 221 | 249 | -205 | 254 | -210 |
| Percent Change | | | -1.7% | | -24% | | -1.4% | | -16% | | .4% | | -17% | | -18% |
| | B | 179 | 145 | 177 | 152 | 176 | 167 | 169 | 145 | 178 | 140 | 136 | 156 | 159 | 144 |
| | G | 170 | 132 | 174 | 123 | 169 | 163 | 160 | 154 | 155 | 127 | 167 | 132 | 164 | 130 |
| CURRY | Total | 349 | -277 | 351 | -275 | 345 | -330 | 329 | -299 | 333 | -267 | 303 | -288 | 323 | -274 |
| Percent Change | | | -20% | | -21% | | -4% | | -9% | | -19% | | -4% | | -15% |
| | B | 264 | 295 | 301 | 306 | 273 | 321 | 272 | 331 | 263 | 308 | 289 | 322 | 317 | 306 |
| | G | 284 | 322 | 257 | 340 | 290 | 327 | 248 | 293 | 232 | 308 | 257 | 277 | 275 | 330 |
| DESCHUTES | Total | 548 | 617 | 558 | 646 | 563 | 648 | 520 | 624 | 495 | 616 | 546 | 599 | 592 | 636 |
| Percent Change | | | 12% | | 15% | | 16% | | 20% | | 24% | | 9% | | 7% |
| | B | 839 | 780 | 818 | 798 | 737 | 841 | 740 | 882 | 804 | 806 | 829 | 902 | 855 | 849 |
| | G | 813 | 792 | 846 | 768 | 778 | 768 | 792 | 783 | 758 | 825 | 787 | 806 | 823 | 749 |
| DOUGLAS | Total | 1652 | -1572 | 1664 | -1566 | 1515 | 1609 | 1532 | 1665 | 1562 | 1631 | 1616 | 1708 | 1678 | -1598 |
| Percent Change | | | -4% | | -5% | | 6% | | 8% | | 5% | | 6% | | -4% |
| | B | 34 | 30 | 35 | 26 | 43 | 31 | 36 | 30 | 27 | 40 | 20 | 37 | 38 | 30 |
| | G | 25 | 27 | 42 | 39 | 38 | 37 | 29 | 34 | 27 | 28 | 46 | 30 | 26 | 19 |
| GILLIAM | Total | 59 | -57 | 77 | -65 | 81 | -68 | 65 | -64 | 54 | 68 | 66 | 67 | 64 | -49 |
| Percent Change | | | -3% | | -15% | | -16% | | -1% | | 25% | | 1% | | -23% |
| | B | 95 | 76 | 90 | 70 | 75 | 79 | 95 | 84 | 95 | 77 | 81 | 67 | 64 | 81 |
| | G | 92 | 78 | 93 | 67 | 71 | 76 | 74 | 77 | 90 | 77 | 84 | 81 | 94 | 73 |
| GRANT | Total | 187 | -154 | 183 | -137 | 146 | 155 | 169 | -161 | 185 | -154 | 165 | -148 | 158 | -154 |
| Percent Change | | | -17% | | -25% | | 6% | | -4% | | -16% | | -10% | | -2% |
| | B | 95 | 82 | 101 | 68 | 77 | 86 | 66 | 74 | 75 | 82 | 61 | 85 | 79 | 84 |
| | G | 73 | 75 | 77 | 97 | 76 | 83 | 82 | 92 | 65 | 82 | 68 | 65 | 75 | 79 |
| HARNEY | Total | 168 | -157 | 178 | -165 | 153 | 169 | 148 | 166 | 140 | 164 | 129 | 150 | 154 | 163 |
| Percent Change | | | -7% | | -8% | | 11% | | 12% | | 17% | | 16% | | 5% |

Table 14 (Continued)

| Age | Sex | 7 |  | 8 |  | 9 |  | 10 |  | 11 |  | 12 |  | 13 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year |  | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
|  | B | 183 | 163 | 146 | 151 | 146 | 166 | 169 | 186 | 163 | 168 | 160 | 165 | 158 | 194 |
|  | G | 153 | 141 | 148 | 148 | 152 | 155 | 139 | 147 | 136 | 144 | 159 | 135 | 154 | 159 |
| HOOD RIVER Total |  | 336 | - 304 | 294 | 299 | 298 | 321 | 308 | 333 | 299 | 312 | 319 | - 300 | 312 | 353 |
| Percent Change |  |  | - 9% |  | 1% |  | 7% |  | 8% |  | 4% |  | - 5% |  | 13% |
|  | B | 872 | 932 | 834 | 975 | 791 | 890 | 750 | 989 | 781 | 947 | 793 | 968 | 807 | 1006 |
|  | G | 842 | 978 | 802 | 982 | 830 | 966 | 783 | 978 | 791 | 1002 | 795 | 997 | 885 | 1031 |
| JACKSON Total |  | 1714 | 1910 | 1636 | 1957 | 1621 | 1856 | 1533 | 1967 | 1572 | 1949 | 1588 | 1965 | 1692 | 2037 |
| Percent Change |  |  | 12% |  | 19% |  | 15% |  | 28% |  | 23% |  | 23% |  | 21% |
|  | B | 99 | 126 | 105 | 118 | 99 | 119 | 91 | 115 | 99 | 112 | 101 | 119 | 112 | 108 |
|  | G | 104 | 109 | 87 | 118 | 101 | 129 | 86 | 130 | 80 | 113 | 81 | 111 | 83 | 132 |
| JEFFERSON Total |  | 203 | 235 | 192 | 236 | 200 | 248 | 177 | 245 | 179 | 225 | 182 | 230 | 195 | 240 |
| Percent Change |  |  | 15% |  | 22% |  | 24% |  | 39% |  | 25% |  | 27% |  | 23% |
|  | B | 326 | 371 | 321 | 359 | 344 | 380 | 352 | 390 | 312 | 417 | 337 | 398 | 352 | 381 |
|  | G | 320 | 335 | 294 | 347 | 288 | 349 | 299 | 400 | 334 | 355 | 299 | 374 | 309 | 342 |
| JOSEPHINE Total |  | 646 | 706 | 615 | 706 | 632 | 729 | 651 | 790 | 646 | 772 | 636 | 772 | 661 | 723 |
| Percent Change |  |  | 9% |  | 14% |  | 15% |  | 21% |  | 19% |  | 21% |  | 9% |
|  | B | 610 | 596 | 554 | 555 | 529 | 556 | 566 | 577 | 520 | 526 | 537 | 540 | 616 | 557 |
|  | G | 530 | 524 | 524 | 523 | 519 | 544 | 489 | 501 | 512 | 514 | 473 | 546 | 550 | 527 |
| KLAMATH Total |  | 1140 | -1120 | 1078 | 1078 | 1048 | 1100 | 1055 | 1078 | 1032 | 1040 | 1010 | 1086 | 1166 | -1084 |
| Percent Change |  |  | - 2% |  | 0% |  | 4% |  | 2% |  | .7% |  | 7% |  | - 7% |
|  | B | 105 | 67 | 76 | 79 | 86 | 64 | 85 | 71 | 93 | 79 | 79 | 78 | 85 | 81 |
|  | G | 86 | 67 | 69 | 61 | 86 | 67 | 76 | 74 | 65 | 83 | 69 | 87 | 75 | 84 |
| LAKE Total |  | 191 | -134 | 145 | -140 | 172 | -131 | 161 | -145 | 158 | 162 | 148 | 165 | 160 | 165 |
| Percent Change |  |  | - 29% |  | - 4% |  | - 23% |  | - 9% |  | 3% |  | 12% |  | 3% |
|  | B | 2143 | 2204 | 1988 | 2257 | 1864 | 2183 | 1861 | 2253 | 1819 | 2234 | 1887 | 2269 | 2007 | 2315 |
|  | G | 1930 | 2146 | 1855 | 2139 | 1830 | 2160 | 1828 | 2085 | 1760 | 2157 | 1734 | 2153 | 1864 | 2166 |
| LANE Total |  | 4073 | 4350 | 3843 | 4396 | 3694 | 4343 | 3689 | 4338 | 3579 | 4391 | 3621 | 4422 | 3871 | 4481 |
| Percent Change |  |  | 6% |  | 14% |  | 17% |  | 17% |  | 22% |  | 22% |  | 15% |

Table 14 (Continued)

| Age | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Sex | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 302 | 231 | 277 | 247 | 243 | 268 | 262 | 252 | 254 | 236 | 257 | 281 | 299 | 275 |
| | G | 280 | 227 | 253 | 232 | 260 | 239 | 258 | 266 | 228 | 285 | 251 | 260 | 230 | 265 |
| LINCOLN Total | | 582 | -458 | 530 | -479 | 503 | 507 | 520 | -518 | 482 | 521 | 508 | 541 | 529 | 540 |
| Percent Change | | | -21% | | -9% | | .8% | | -.4% | | 8% | | 6% | | 2% |
| | B | 762 | 788 | 774 | 755 | 747 | 819 | 705 | 746 | 709 | 771 | 680 | 772 | 760 | 760 |
| | G | 701 | 738 | 709 | 704 | 653 | 731 | 688 | 712 | 660 | 728 | 685 | 743 | 719 | 710 |
| LINN Total | | 1463 | 1526 | 1483 | -1459 | 1400 | 1550 | 1393 | 1458 | 1369 | 1499 | 1365 | 1515 | 1479 | -1470 |
| Percent Change | | | 4% | | -1% | | 10% | | 5% | | 10% | | 10% | | -.6% |
| | B | 284 | 266 | 249 | 275 | 240 | 300 | 248 | 280 | 287 | 291 | 249 | 284 | 298 | 264 |
| | G | 306 | 263 | 276 | 274 | 273 | 272 | 264 | 268 | 239 | 256 | 251 | 284 | 263 | 307 |
| MALHEUR Total | | 590 | -529 | 525 | 549 | 513 | 572 | 512 | 548 | 526 | 547 | 500 | 568 | 561 | 571 |
| Percent Change | | | -10% | | 4% | | 11% | | 7% | | 3% | | 13% | | 1% |
| | B | 1334 | 1312 | 1258 | 1464 | 1213 | 1442 | 1229 | 1434 | 1208 | 1455 | 1169 | 1429 | 1339 | 1484 |
| | G | 1234 | 1378 | 1195 | 1408 | 1138 | 1365 | 1199 | 1375 | 1138 | 1388 | 1164 | 1399 | 1277 | 1421 |
| MARION Total | | 2568 | 2690 | 2453 | 2872 | 2351 | 2807 | 2428 | 2809 | 2346 | 2843 | 2333 | 2828 | 2616 | 2905 |
| Percent Change | | | 4% | | 17% | | 19% | | 15% | | 21% | | 21% | | 11% |
| | B | 58 | 44 | 62 | 38 | 50 | 48 | 51 | 34 | 51 | 59 | 55 | 49 | 59 | 46 |
| | G | 56 | 56 | 53 | 47 | 61 | 52 | 50 | 60 | 51 | 53 | 54 | 57 | 57 | 45 |
| MORROW Total | | 114 | -100 | 115 | -85 | 111 | -100 | 101 | -94 | 102 | 112 | 109 | -106 | 116 | -91 |
| Percent Change | | | -12% | | -26% | | -9% | | -7% | | 10% | | -3% | | -22% |
| | B | 5440 | 4971 | 5408 | 4973 | 5124 | 5202 | 4933 | 5149 | 4738 | 5065 | 4756 | 5287 | 5181 | 5274 |
| | G | 5210 | 4883 | 5197 | 5005 | 4771 | 5037 | 4797 | 4974 | 4647 | 5027 | 4696 | 4985 | 5168 | 5139 |
| MULTNOMAH Total | | 10650 | -9854 | 10605 | -9978 | 9895 | 10239 | 9730 | 10123 | 9385 | 10092 | 9452 | 10272 | 10349 | 10413 |
| Percent Change | | | -7% | | -5% | | 3% | | 4% | | 7% | | 8% | | .6% |
| | B | 317 | 321 | 324 | 325 | 263 | 316 | 257 | 306 | 293 | 309 | 277 | 368 | 303 | 378 |
| | G | 268 | 288 | 282 | 291 | 273 | 304 | 295 | 327 | 273 | 330 | 272 | 351 | 288 | 323 |
| POLK Total | | 585 | 609 | 606 | 616 | 536 | 620 | 552 | 633 | 566 | 639 | 549 | 719 | 591 | 701 |
| Percent Change | | | 5% | | 1% | | 15% | | 14% | | 12% | | 30% | | 18% |

Table 14 (Continued)

| Age |  | 7 |  | 8 |  | 9 |  | 10 |  | 11 |  | 12 |  | 13 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Sex | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
|  | B | 30 | 22 | 31 | 32 | 31 | 27 | 28 | 34 | 24 | 40 | 25 | 31 | 28 | 27 |
|  | G | 30 | 36 | 37 | 33 | 32 | 20 | 27 | 42 | 33 | 27 | 28 | 36 | 30 | 32 |
| SHERMAN Total |  | 60 | - 58 | 68 | - 65 | 63 | - 47 | 55 | 76 | 57 | 67 | 53 | 67 | 58 | 59 |
| Percent Change |  |  | - 3% |  | - 4% |  | - 25% |  | 38% |  | 17% |  | 26% |  | 1% |
|  | B | 226 | 158 | 255 | 204 | 231 | 186 | 250 | 190 | 183 | 172 | 208 | 187 | 228 | 194 |
|  | G | 228 | 166 | 217 | 181 | 230 | 164 | 205 | 184 | 188 | 185 | 220 | 186 | 190 | 203 |
| TILLAMOOK Total |  | 454 | - 324 | 472 | - 385 | 461 | - 350 | 455 | - 374 | 371 | - 357 | 428 | - 373 | 418 | - 397 |
| Percent Change |  |  | - 28% |  | - 18% |  | - 24% |  | - 17% |  | - 3% |  | - 12% |  | - 5% |
|  | B | 521 | 443 | 506 | 463 | 504 | 453 | 478 | 483 | 464 | 517 | 466 | 551 | 513 | 520 |
|  | G | 539 | 421 | 491 | 429 | 513 | 457 | 488 | 472 | 462 | 498 | 480 | 469 | 518 | 489 |
| UMATILLA Total |  | 1060 | - 864 | 997 | - 892 | 1017 | - 910 | 966 | - 955 | 926 | 1015 | 946 | 1020 | 1031 | 1009 |
| Percent Change |  |  | - 18% |  | - 10% |  | - 10% |  | - 1% |  | 9% |  | 7% |  | - 2% |
|  | B | 169 | 164 | 198 | 186 | 181 | 190 | 184 | 195 | 179 | 187 | 186 | 189 | 204 | 196 |
|  | G | 183 | 149 | 163 | 177 | 197 | 202 | 195 | 187 | 170 | 206 | 186 | 180 | 205 | 175 |
| UNION Total |  | 352 | - 313 | 361 | 363 | 378 | 392 | 379 | 382 | 349 | 393 | 372 | - 369 | 409 | - 371 |
| Percent Change |  |  | - 46% |  | .5% |  | 3% |  | .8% |  | 12% |  | - .8% |  | - 9% |
|  | B | 106 | 58 | 87 | 53 | 75 | 59 | 72 | 69 | 78 | 74 | 78 | 78 | 80 | 86 |
|  | G | 57 | 65 | 81 | 54 | 70 | 56 | 65 | 64 | 66 | 65 | 82 | 55 | 64 | 61 |
| WALLOWA Total |  | 163 | -123 | 168 | - 107 | 145 | -115 | 137 | -133 | 144 | - 139 | 160 | -133 | 144 | 147 |
| Percent Change |  |  | - 24% |  | - 36% |  | - .2% |  | - 2% |  | - 3% |  | - 16% |  | 2% |
|  | B | 244 | 200 | 221 | 227 | 232 | 214 | 215 | 224 | 228 | 252 | 226 | 272 | 214 | 242 |
|  | G | 226 | 203 | 213 | 219 | 168 | 222 | 229 | 222 | 209 | 246 | 184 | 227 | 232 | 256 |
| WASCO Total |  | 470 | - 403 | 434 | 446 | 400 | 436 | 444 | 446 | 437 | 498 | 410 | 499 | 446 | 498 |
| Percent Change |  |  | - 14% |  | 2% |  | 9% |  | .4% |  | 13% |  | 21% |  | 11% |
|  | B | 1205 | 1501 | 1183 | 1508 | 1119 | 1490 | 1111 | 1537 | 1054 | 1507 | 1068 | 1501 | 1140 | 1473 |
|  | G | 1143 | 1358 | 1086 | 1414 | 1008 | 1448 | 1005 | 1416 | 1009 | 1370 | 972 | 1395 | 1059 | 1389 |
| WASHINGTON Total |  | 2348 | 2859 | 2269 | 2922 | 2127 | 2938 | 2116 | 2953 | 2063 | 2877 | 2040 | 2896 | 2199 | 2862 |
| Percent Change |  |  | 21% |  | 28% |  | 38% |  | 39% |  | 39% |  | 41% |  | 30% |

Table 14 (Continued)

| Age |  | 7 |  | 8 |  | 9 |  | 10 |  | 11 |  | 12 |  | 13 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Sex | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
|  | B | 34 | 20 | 28 | 11 | 33 | 11 | 21 | 20 | 31 | 21 | 21 | 19 | 24 | 19 |
|  | G | 29 | 11 | 29 | 19 | 29 | 18 | 29 | 13 | 16 | 19 | 32 | 20 | 39 | 26 |
| WHEELER Total |  | 63 | - 31 | 57 | - 30 | 62 | - 29 | 50 | - 33 | 47 | - 40 | 53 | - 39 | 63 | - 45 |
| Percent Change |  |  | - 50% |  | - 47% |  | - 53% |  | - 34% |  | - 14% |  | - 26% |  | - 28% |
|  | B | 332 | 337 | 368 | 360 | 341 | 427 | 360 | 367 | 348 | 396 | 340 | 441 | 392 | 417 |
|  | G | 355 | 348 | 363 | 387 | 345 | 360 | 326 | 374 | 353 | 376 | 363 | 393 | 351 | 427 |
| YAMHILL Total |  | 687 | - 685 | 731 | 747 | 686 | 787 | 686 | 741 | 701 | 772 | 703 | 834 | 743 | 844 |
| Percent Change |  |  | - .3% |  | 2% |  | 14% |  | 8% |  | 10% |  | 18% |  | 13% |
|  | B | 20543 | 20259 | 20127 | 20588 | 19171 | 21019 | 18802 | 21213 | 18471 | 20928 | 18478 | 21488 | 20094 | 21485 |
|  | G | 19497 | 19572 | 19123 | 20071 | 18322 | 20293 | 18153 | 20167 | 17772 | 20323 | 17849 | 20182 | 19260 | 20618 |
| STATE Total |  | 40040 | - 39831 | 39250 | 40659 | 37493 | 41312 | 36955 | 41380 | 36243 | 41251 | 36327 | 41670 | 39354 | 42103 |

Source: Oregon Board of Education
Financial Services Division
Research and School Finance

## Table 15

## ANNUAL SCHOOL CENSUS FOR 1960, 1966 BY COUNTY (AGE 14-18)

(COMPARISONS BY PERCENTAGE CHANGE)

| Age | | 14 | | 15 | | 16 | | 17 | | 18 | | Total Census (14-18) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Sex | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 178 | 175 | 138 | 185 | 157 | 172 | 145 | 158 | 140 | 145 | 758 | 835 |
| | G | 142 | 169 | 129 | 155 | 150 | 147 | 134 | 167 | 111 | 138 | 666 | 776 |
| BAKER | Total | 320 | 344 | 267 | 340 | 307 | 319 | 279 | 325 | 251 | 283 | 1424 | 1611 |
| Percent Change | | | 7% | | 28% | | 3% | | 16% | | 12% | | |
| | B | 259 | 440 | 281 | 415 | 297 | 418 | 238 | 356 | 223 | 332 | 1298 | 1961 |
| | G | 293 | 455 | 251 | 405 | 265 | 361 | 263 | 389 | 207 | 314 | 1279 | 1924 |
| BENTON | Total | 552 | 895 | 532 | 820 | 562 | 779 | 501 | 745 | 430 | 646 | 2577 | 3885 |
| Percent Change | | | 63% | | 55% | | 38% | | 48% | | 50% | | |
| | B | 1043 | 1700 | 872 | 1624 | 892 | 1574 | 896 | 1421 | 812 | 1307 | 4515 | 7626 |
| | G | 971 | 1642 | 846 | 1534 | 790 | 1399 | 925 | 1370 | 735 | 1144 | 4267 | 7089 |
| CLACKAMAS | Total | 2014 | 3342 | 1718 | 3158 | 1682 | 2973 | 1821 | 2791 | 1547 | 2451 | 8782 | 14715 |
| Percent Change | | | 65% | | 83% | | 76% | | 53% | | 59% | | |
| | B | 257 | 239 | 217 | 241 | 213 | 256 | 214 | 242 | 184 | 241 | 1085 | 1219 |
| | G | 220 | 251 | 205 | 230 | 200 | 214 | 203 | 196 | 171 | 171 | 999 | 1062 |
| CLATSOP | Total | 477 | 490 | 422 | 471 | 413 | 470 | 417 | 438 | 355 | 412 | 2084 | 2281 |
| Percent Change | | | 2% | | 11% | | 13% | | 5% | | 16% | | |
| | B | 198 | 302 | 190 | 308 | 212 | 274 | 211 | 324 | 216 | 248 | 1027 | 1456 |
| | G | 207 | 266 | 192 | 277 | 195 | 274 | 200 | 256 | 153 | 230 | 947 | 1303 |
| COLUMBIA | Total | 405 | 568 | 382 | 585 | 407 | 548 | 411 | 580 | 369 | 478 | 1974 | 2759 |
| Percent Change | | | 40% | | 54% | | 34% | | 41% | | 29% | | |
| | B | 497 | 646 | 473 | 611 | 460 | 560 | 489 | 551 | 454 | 544 | 2373 | 2912 |
| | G | 456 | 597 | 485 | 586 | 447 | 569 | 470 | 561 | 407 | 476 | 2265 | 2689 |
| COOS | Total | 953 | 1243 | 958 | 1197 | 907 | 1129 | 959 | 1112 | 861 | 1020 | 4638 | 5701 |
| Percent Change | | | 30% | | 25% | | 24% | | 16% | | 18% | | |

| Age | Sex | 14 | | 15 | | 16 | | 17 | | 18 | | Total Census (14-18) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 102 | 111 | 99 | 132 | 86 | 123 | 88 | 104 | 88 | 84 | 463 | 554 |
| | G | 92 | 112 | 92 | 102 | 83 | 103 | 90 | 84 | 72 | 85 | 429 | 486 |
| CROOK | Total | 194 | 223 | 191 | 234 | 169 | 226 | 178 | 188 | 160 | 169 | 892 | 1040 |
| Percent Change | | | 14% | | 23% | | 33% | | 5% | | .8% | | |
| | B | 139 | 146 | 130 | 135 | 134 | 147 | 129 | 143 | 127 | 127 | 659 | 698 |
| | G | 124 | 135 | 122 | 143 | 102 | 149 | 119 | 123 | 102 | 127 | 569 | 677 |
| CURRY | Total | 263 | 281 | 252 | 278 | 236 | 296 | 248 | 266 | 229 | 254 | 1228 | 1375 |
| Percent Change | | | 6% | | 11% | | 25% | | 8% | | 10% | | |
| | B | 216 | 317 | 196 | 307 | 224 | 290 | 221 | 295 | 223 | 287 | 1080 | 1496 |
| | G | 211 | 303 | 168 | 315 | 184 | 262 | 224 | 268 | 170 | 207 | 957 | 1355 |
| DESCHUTES | Total | 427 | 620 | 364 | 622 | 408 | 552 | 445 | 563 | 393 | 494 | 2037 | 2851 |
| Percent Change | | | 46% | | 70% | | 35% | | 26% | | 25% | | |
| | B | 646 | 823 | 649 | 730 | 598 | 712 | 618 | 753 | 612 | 729 | 3123 | 3747 |
| | G | 623 | 806 | 572 | 767 | 563 | 743 | 568 | 685 | 529 | 606 | 2855 | 3607 |
| DOUGLAS | Total | 1269 | 1629 | 1221 | 1497 | 1161 | 1455 | 1186 | 1438 | 1141 | 1335 | 5978 | 7354 |
| Percent Change | | | 28% | | 23% | | 25% | | 21% | | 17% | | |
| | B | 27 | 25 | 16 | 33 | 37 | 35 | 16 | 27 | 12 | 24 | 108 | 144 |
| | G | 24 | 27 | 17 | 25 | 25 | 25 | 20 | 25 | 16 | 29 | 102 | 131 |
| GILLIAM | Total | 51 | 52 | 33 | 58 | 62 | -60 | 36 | 52 | 28 | 53 | 210 | 275 |
| Percent Change | | | 1% | | 75% | | - 3% | | 44% | | 89% | | |
| | B | 75 | 79 | 84 | 71 | 78 | 88 | 57 | 79 | 66 | 64 | 360 | 381 |
| | G | 70 | 95 | 61 | 54 | 54 | 68 | 61 | 71 | 61 | 48 | 307 | 336 |
| GRANT | Total | 145 | 174 | 145 | - 125 | 132 | 156 | 118 | 150 | 127 | - 112 | 667 | 717 |
| Percent Change | | | 20% | | -13% | | 18% | | 27% | | - 11% | | |
| | B | 55 | 92 | 58 | 75 | 50 | 58 | 55 | 75 | 38 | 56 | 256 | 356 |
| | G | 52 | 64 | 48 | 70 | 46 | 75 | 43 | 69 | 36 | 54 | 225 | 332 |
| HARNEY | Total | 107 | 156 | 106 | 145 | 96 | 133 | 98 | 144 | 74 | 110 | 481 | 688 |
| Percent Change | | | 46% | | 37% | | 39% | | 47% | | 74% | | |

Table 15 (Continued)

| Age | Sex | 14 | | 15 | | 16 | | 17 | | 18 | | Total Census (14-18) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 147 | 174 | 121 | 169 | 126 | 169 | 126 | 164 | 115 | 132 | 635 | 808 |
| | G | 108 | 171 | 110 | 167 | 131 | 159 | 113 | 122 | 121 | 139 | 583 | 758 |
| HOOD RIVER Total | | 255 | 345 | 231 | 336 | 257 | 328 | 239 | 286 | 236 | 271 | 1218 | 1566 |
| Percent Change | | | 36% | | 45% | | 27% | | 19% | | 14% | | |
| | B | 681 | 1000 | 576 | 905 | 618 | 860 | 603 | 884 | 540 | 773 | 3018 | 4422 |
| | G | 735 | 943 | 649 | 1004 | 655 | 897 | 723 | 895 | 597 | 829 | 3359 | 4568 |
| JACKSON Total | | 1416 | 1943 | 1225 | 1909 | 1273 | 1757 | 1326 | 1779 | 1137 | 1602 | 6377 | 8990 |
| Percent Change | | | 37% | | 55% | | 38% | | 34% | | 40% | | |
| | B | 82 | 122 | 82 | 110 | 77 | 116 | 81 | 101 | 45 | 98 | 367 | 547 |
| | G | 88 | 104 | 65 | 124 | 69 | 90 | 64 | 80 | 43 | 77 | 329 | 475 |
| JEFFERSON Total | | 170 | 226 | 147 | 234 | 146 | 206 | 145 | 181 | 88 | 175 | 696 | 1022 |
| Percent Change | | | 32% | | 59% | | 41% | | 24% | | 99% | | |
| | B | 289 | 372 | 276 | 359 | 293 | 373 | 264 | 357 | 259 | 320 | 1381 | 1781 |
| | G | 292 | 336 | 257 | 351 | 253 | 348 | 251 | 349 | 175 | 270 | 1228 | 1654 |
| JOSEPHINE Total | | 581 | 708 | 533 | 710 | 546 | 721 | 515 | 706 | 434 | 590 | 2609 | 3435 |
| Percent Change | | | 21% | | 33% | | 32% | | 37% | | 35% | | |
| | B | 480 | 555 | 369 | 483 | 386 | 562 | 414 | 499 | 397 | 536 | 2046 | 2635 |
| | G | 420 | 544 | 374 | 458 | 330 | 481 | 332 | 427 | 335 | 383 | 1791 | 2293 |
| KLAMATH Total | | 900 | 1099 | 743 | 941 | 716 | 1043 | 746 | 926 | 732 | 919 | 3837 | 4928 |
| Percent Change | | | 22% | | 26% | | 45% | | 25% | | 25% | | |
| | B | 54 | 82 | 54 | 77 | 66 | 71 | 46 | 70 | 54 | 62 | 274 | 362 |
| | G | 72 | 73 | 56 | 80 | 59 | 69 | 71 | 57 | 35 | 53 | 293 | 332 |
| LAKE Total | | 126 | 155 | 110 | 157 | 125 | 140 | 117 | 127 | 89 | 115 | 567 | 694 |
| Percent Change | | | 23% | | 43% | | 12% | | 9% | | 29% | | |
| | B | 1596 | 2226 | 1459 | 2105 | 1430 | 2106 | 1478 | 2004 | 1362 | 2015 | 7325 | 10456 |
| | G | 1447 | 2059 | 1312 | 2028 | 1305 | 2053 | 1392 | 1915 | 1180 | 1856 | 6636 | 9911 |
| LANE Total | | 3043 | 4285 | 2771 | 4133 | 2735 | 4159 | 2890 | 3919 | 2542 | 3871 | 13981 | 20367 |
| Percent Change | | | 40% | | 49% | | 52% | | 35% | | 52% | | |

Table 15 (Continued)

| Age | | 14 | | 15 | | 16 | | 17 | | 18 | | Total Census (14-18) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Sex | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 232 | 266 | 201 | 257 | 184 | 258 | 217 | 270 | 174 | 213 | 1008 | 1264 |
| | G | 197 | 273 | 187 | 234 | 176 | 247 | 211 | 218 | 155 | 176 | 926 | 1148 |
| LINCOLN Total | | 429 | 539 | 388 | 491 | 360 | 505 | 428 | 488 | 329 | 389 | 1934 | 2412 |
| Percent Change | | | 25% | | 26% | | 40% | | 15% | | 19% | | |
| | B | 632 | 797 | 527 | 730 | 574 | 705 | 586 | 695 | 468 | 592 | 2787 | 3519 |
| | G | 606 | 699 | 487 | 648 | 492 | 661 | 502 | 615 | 422 | 526 | 2509 | 3149 |
| LINN Total | | 1238 | 1496 | 1014 | 1378 | 1066 | 1366 | 1088 | 1310 | 890 | 1118 | 5296 | 6668 |
| Percent Change | | | 20% | | 35% | | 28% | | 20% | | 25% | | |
| | B | 239 | 268 | 227 | 219 | 221 | 256 | 224 | 260 | 205 | 227 | 1116 | 1230 |
| | G | 220 | 279 | 211 | 295 | 224 | 257 | 194 | 227 | 164 | 236 | 1013 | 1294 |
| MALHEUR Total | | 459 | 547 | 438 | 514 | 445 | 513 | 418 | 487 | 369 | 463 | 2129 | 2524 |
| Percent Change | | | 20% | | 17% | | 15% | | 16% | | 25% | | |
| | B | 1066 | 1436 | 1025 | 1374 | 961 | 1396 | 1025 | 1372 | 860 | 1358 | 4937 | 6936 |
| | G | 990 | 1357 | 947 | 1252 | 958 | 1355 | 909 | 1291 | 798 | 1406 | 4602 | 6661 |
| MARION Total | | 2056 | 2793 | 1972 | 2626 | 1919 | 2751 | 1934 | 2663 | 1658 | 2764 | 9539 | 13597 |
| Percent Change | | | 35% | | 33% | | 43% | | 37% | | 66% | | |
| | B | 54 | 59 | 42 | 31 | 47 | 53 | 53 | 49 | 35 | 38 | 231 | 230 |
| | G | 32 | 56 | 45 | 44 | 36 | 46 | 44 | 35 | 28 | 34 | 185 | 215 |
| MORROW Total | | 86 | 115 | 87 | - 75 | 83 | 99 | 97 | -84 | 63 | 72 | 416 | 445 |
| Percent Change | | | 34% | | - 14% | | 19% | | -13% | | 14% | | |
| | B | 4203 | 5203 | 372 | 4835 | 3452 | 4735 | 3637 | 4522 | 2984 | 4015 | 18004 | 23310 |
| | G | 4060 | 4975 | 3570 | 4606 | 3405 | 4623 | 3549 | 4368 | 2840 | 3762 | 17424 | 22334 |
| MULTNOMAH Total | | 8263 | 10178 | 7298 | 9441 | 6857 | 9358 | 7186 | 8890 | 5824 | 7777 | 35428 | 45644 |
| Percent Change | | | 23% | | 29% | | 36% | | 23% | | 33% | | |
| | B | 236 | 356 | 232 | 330 | 251 | 328 | 294 | 318 | 236 | 285 | 1249 | 1617 |
| | G | 261 | 310 | 228 | 319 | 229 | 319 | 232 | 294 | 182 | 257 | 1132 | 1499 |
| POLK Total | | 497 | 666 | 460 | 649 | 480 | 647 | 526 | 612 | 418 | 524 | 2381 | 3116 |
| Percent Change | | | 34% | | 41% | | 34% | | 16% | | 29% | | |

Table 15 (Continued)

| Age | Sex | 14 | | 15 | | 16 | | 17 | | 18 | | Total Census (14-18) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 25 | 33 | 15 | 32 | 24 | 33 | 22 | 32 | 17 | 24 | 103 | 154 |
| | G | 20 | 34 | 32 | 28 | 17 | 28 | 20 | 32 | 24 | 30 | 113 | 152 |
| SHERMAN Total | | 45 | 67 | 47 | 60 | 41 | 61 | 42 | 64 | 41 | 54 | 216 | 306 |
| Percent Change | | | 48% | | 27% | | 48% | | 52% | | 31% | | |
| | B | 199 | 208 | 155 | 211 | 165 | 229 | 176 | 166 | 153 | 184 | 848 | 998 |
| | G | 183 | 195 | 142 | 185 | 197 | 181 | 144 | 168 | 118 | 158 | 784 | 887 |
| TILLAMOOK Total | | 382 | 403 | 297 | 396 | 362 | 410 | 320 | 334 | 271 | 342 | 1632 | 1885 |
| Percent Change | | | 5% | | 34% | | 14% | | 4% | | 26% | | |
| | B | 406 | 493 | 391 | 472 | 353 | 455 | 396 | 462 | 280 | 438 | 1826 | 2320 |
| | G | 385 | 482 | 323 | 497 | 352 | 455 | 362 | 450 | 315 | 363 | 1737 | 2247 |
| UMATILLA Total | | 791 | 975 | 714 | 969 | 705 | 910 | 758 | 912 | 595 | 801 | 3563 | 4567 |
| Percent Change | | | 23% | | 35% | | 29% | | 20% | | 34% | | |
| | B | 167 | 200 | 138 | 192 | 166 | 179 | 147 | 178 | 141 | 185 | 759 | 934 |
| | G | 178 | 148 | 142 | 185 | 147 | 188 | 158 | 164 | 121 | 149 | 746 | 834 |
| UNION Total | | 345 | 348 | 280 | 377 | 313 | 367 | 305 | 342 | 262 | 334 | 1505 | 1768 |
| Percent Change | | | .8% | | 34% | | 17% | | 12% | | 27% | | |
| | B | 63 | 80 | 46 | 74 | 52 | 64 | 55 | 58 | 59 | 70 | 275 | 346 |
| | G | 58 | 73 | 57 | 61 | 53 | 53 | 62 | 71 | 49 | 70 | 279 | 328 |
| WALLOWA Total | | 121 | 153 | 103 | 135 | 105 | 117 | 117 | 129 | 108 | 140 | 554 | 674 |
| Percent Change | | | 26% | | 31% | | 11% | | 10% | | 29% | | |
| | B | 184 | 231 | 177 | 238 | 138 | 222 | 154 | 225 | 141 | 223 | 794 | 1139 |
| | G | 157 | 206 | 138 | 220 | 156 | 225 | 160 | 218 | 130 | 116 | 741 | 1035 |
| WASCO Total | | 341 | 437 | 315 | 458 | 294 | 447 | 314 | 443 | 271 | 389 | 1535 | 2174 |
| Percent Change | | | 28% | | 45% | | 52% | | 41% | | 43% | | |
| | B | 908 | 1444 | 787 | 1314 | 774 | 1312 | 769 | 1147 | 657 | 1029 | 3895 | 6256 |
| | G | 851 | 1334 | 776 | 1281 | 744 | 1160 | 736 | 1112 | 562 | 949 | 3669 | 5836 |
| WASHINGTON Total | | 1759 | 2778 | 1563 | 2595 | 1518 | 2472 | 1505 | 2269 | 1219 | 1978 | 7564 | 12092 |
| Percent Change | | | 57% | | 66% | | 62% | | 50% | | 62% | | |

Table 15 (Continued)

| Age | | 14 | | 15 | | 16 | | 17 | | 18 | | Total Census (14-18) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Sex | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 | 1960 | 1966 |
| | B | 25 | 19 | 25 | 27 | 13 | 18 | 33 | 27 | 21 | 18 | 117 | 109 |
| | G | 19 | 22 | 27 | 16 | 19 | 23 | 20 | 12 | 18 | 18 | 103 | 91 |
| WHEELER Total | | 44 | -41 | 52 | -43 | 32 | -41 | 53 | -39 | 39 | -36 | 220 | -200 |
| Percent Change | | | -6% | | -17% | | -28% | | -26% | | -7% | | |
| | B | 338 | 436 | 312 | 383 | 292 | 410 | 325 | 407 | 294 | 344 | 1561 | 1980 |
| | G | 309 | 426 | 263 | 393 | 267 | 357 | 300 | 384 | 230 | 364 | 1369 | 1924 |
| YAMHILL Total | | 647 | 862 | 575 | 776 | 559 | 767 | 625 | 791 | 524 | 708 | 2930 | 3904 |
| Percent Change | | | 33% | | 34% | | 37% | | 26% | | 35% | | |
| | B | 16111 | 21155 | 14465 | 19794 | 14232 | 19617 | 14600 | 18805 | 12815 | 17367 | 72223 | 96738 |
| | G | 15299 | 20021 | 13706 | 19139 | 13475 | 18664 | 13979 | 17768 | 11485 | 15900 | 67944 | 91492 |
| STATE Total | | 31410 | 41176 | 28171 | 38933 | 27707 | 38281 | 28579 | 36573 | 24300 | 33267 | 140167 | 188230 |
| Percent Change | | | 31% | | 38% | | 38% | | 27% | | 36% | | 34% |

Source: Oregon Board of Education
Administrative Field Services Division
School Standards

## Table 16

## STUDENT ADMa* BY COUNTY, GRADES 1-12

(1958-59, 1963-64, 1967-Dec. 31**)

| County | 1958-59 | | | 1963-64 | | | Dec. 31, 1967 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Grades 1-8 | Grades 9-12 | Total | Grades 1-8 | Grades 9-12 | Total | Grades 1-8 | Grades 9-12 | Total |
| Baker | 2,661.2 | 897.1 | 3,558.3 | 2,468.5 | 994.0 | 3,562.5 | 2,590.6 | 1,153.5 | 3,744.1 |
| Benton | 4,925.3 | 1,573.8 | 6,776.9 | 6,191.9 | 2,503.9 | 9,004.6 | 6,796.3 | 2,836.9 | 9,633.2 |
| Clackamas | 16,642.3 | 6,267.2 | 23,403.4 | 21,174.4 | 9,246.0 | 30,843.0 | 25,231.3 | 11,545.3 | 36,776.6 |
| Clatsop | 3,942.7 | 1,344.4 | 5,287.1 | 3,668.1 | 1,675.8 | 5,343.9 | 3,524.4 | 1,744.1 | 5,268.5 |
| Columbia | 3,753.4 | 1,608.3 | 5,379.0 | 4,036.0 | 2,074.3 | 6,127.0 | 5,273.6 | 2,558.9 | 7,832.5 |
| Coos | 9,016.4 | 2,941.2 | 11,957.6 | 9,504.3 | 3,837.9 | 13,342.2 | 9,415.5 | 4,108.9 | 13,524.4 |
| Crook | 1,836.2 | 609.1 | 2,445.3 | 1,808.1 | 769.8 | 2,577.9 | 1,671.0 | 813.1 | 2,484.1 |
| Curry | 2,335.9 | 753.1 | 3,089.0 | 2,524.5 | 998.4 | 3,522.9 | 2,275.3 | 1,013.9 | 3,289.2 |
| Deschutes | 3,646.9 | 1,474.3 | 5,121.2 | 4,231.0 | 1,974.4 | 6,205.4 | 4,712.4 | 2,299.5 | 7,011.9 |
| Douglas | 11,631.5 | 4,063.3 | 15,740.9 | 12,613.5 | 5,146.0 | 17,806.3 | 12,429.5 | 5,480.3 | 17,909.8 |
| Gilliam | 492.4 | 141.9 | 634.3 | 593.1 | 230.6 | 823.7 | 522.6 | 206.9 | 729.5 |
| Grant | 1,294.4 | 470.9 | 1,765.3 | 1,399.7 | 549.4 | 1,949.1 | 1,149.2 | 634.4 | 1,783.6 |
| Harney | 1,113.2 | 357.8 | 1,514.1 | 1,343.4 | 511.3 | 1,900.0 | 595.3 | 1,331.8 | 1,927.1 |
| Hood River | 2,222.8 | 858.0 | 3,080.8 | 2,372.3 | 1,003.9 | 3,376.2 | 2,386.0 | 1,144.4 | 3,530.4 |
| Jackson | 11,192.2 | 4,111.6 | 15,303.8 | 13,180.6 | 5,740.1 | 18,920.7 | 14,416.5 | 6,646.1 | 21,062.6 |
| Jefferson | 1,175.4 | 444.2 | 1,619.6 | 1,910.5 | 750.9 | 2,661.4 | 1,807.5 | 701.1 | 2,508.6 |
| Josephine | 4,862.6 | 1,863.0 | 6,725.6 | 5,383.6 | 2,328.3 | 7,711.9 | 5,722.0 | 2,643.8 | 8,365.8 |
| Klamath | 7,388.0 | 2,451.8 | 9,839.8 | 7,747.3 | 3,131.1 | 10,878.4 | 7,893.6 | 3,391.4 | 11,285.0 |

Table 16 (Continued)

| County | 1958-59 Grades 1-8 | 1958-59 Grades 9-12 | 1958-59 Total | 1963-64 Grades 1-8 | 1963-64 Grades 9-12 | 1963-64 Total | Dec. 31, 1967 Grades 1-8 | Dec. 31, 1967 Grades 9-12 | Dec. 31, 1967 Total |
|---|---|---|---|---|---|---|---|---|---|
| Lake | 1,220.4 | 380.5 | 1,718.1 | 1,287.1 | 453.4 | 1,842.4 | 1,140.3 | 562.8 | 1,703.1 |
| Lane | 24,292.9 | 8,647.7 | 32,961.3 | 30,234.9 | 12,689.6 | 42,942.8 | 32,707.3 | 15,004.1 | 47,711.4 |
| Lincoln | 3,967.1 | 1,328.9 | 5,296.0 | 4,130.2 | 1,711.5 | 5,841.7 | 3,915.7 | 1,967.6 | 5,883.3 |
| Linn | 9,987.7 | 3,727.5 | 13,715.2 | 11,309.7 | 4,919.6 | 16,229.3 | 11,284.8 | 5,469.1 | 16,753.9 |
| Malheur | 4,097.1 | 1,466.5 | 5,563.6 | 4,377.4 | 1,671.2 | 6,048.6 | 4,503.7 | 1,889.1 | 6,392.8 |
| Marion | 15,886.9 | 6,239.1 | 22,170.8 | 19,066.0 | 8,603.4 | 27,713.7 | 21,823.1 | 9,908.1 | 31,731.2 |
| Morrow | 807.4 | 292.6 | 1,100.0 | 849.5 | 353.8 | 1,203.3 | 757.8 | 354.7 | 1,112.5 |
| Multnomah | 63,809.6 | 22,813.7 | 89,985.1 | 69,554.9 | 31,954.8 | 104,691.7 | 68,518.1 | 33,914.1 | 102,432.2 |
| Polk | 3,105.3 | 1,080.4 | 4,185.7 | 3,680.6 | 1,408.9 | 5,089.5 | 3,918.9 | 1,460.7 | 5,379.6 |
| Sherman | 410.1 | 141.6 | 591.7 | 593.3 | 260.9 | 868.3 | 436.9 | 222.8 | 659.7 |
| Tillamook | 3,059.7 | 1,108.3 | 4,168.0 | 2,830.1 | 1,308.4 | 4,138.5 | 2,680.5 | 1,457.7 | 4,138.2 |
| Umatilla | 6,868.4 | 2,383.0 | 9,701.6 | 7,362.6 | 3,150.9 | 10,890.6 | 7,009.1 | 3,502.1 | 10,511.2 |
| Union | 3,038.0 | 1,132.3 | 4,195.4 | 2,859.5 | 1,321.9 | 4,207.1 | 2,969.0 | 1,346.3 | 4.315.3 |
| Wallowa | 1,150.5 | 427.4 | 1,577.9 | 1,139.4 | 520.2 | 1,659.6 | 972.3 | 522.9 | 1,495.2 |
| Wasco | 2,900.7 | 1,106.9 | 4,007.6 | 3,543.6 | 1,536.6 | 5,080.2 | 3,227.0 | 1,680.8 | 4,907.8 |
| Washington | 13,426.1 | 5,221.0 | 18,950.6 | 18,212.8 | 7,843.8 | 26,186.9 | 22,196.4 | 9,964.1 | 32,160.5 |
| Wheeler | 466.9 | 163.9 | 630.8 | 351.7 | 170.0 | 521.7 | 284.5 | 141.0 | 425.5 |
| Yamhill | 5,254.9 | 2,285.1 | 7,622.9 | 5,676.8 | 2,857.3 | 8,621.7 | 6,173.8 | 3,311.4 | 9,485.2 |
| Total | 253,882.5 | 92,177.4 | 351,384.3 | 289,210.9 | 126,202.3 | 420,234.7 | 302,931.8 | 142,933.7 | 445,865.5 |

*Average Daily Membership, attending

**1967 figures for second quarter. Year end data not completed.

Source: Oregon Board of Education
Financial Services Division
Research and School Finance

## Table 17

### PROJECTED ADMa* - OREGON PUBLIC SCHOOLS, GRADES 1-12

### 1966-1972 GRADUATE PROJECTION - PUBLIC, PRIVATE & PAROCHIAL SCHOOLS

| Grade | 1966-67** | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 |
|---|---|---|---|---|---|---|
| 1 | 39,601.8 | 38,820.8 | 38,273.7 | 36,079.8 | 34,669.2 | 34,105.1 |
| 2 | 37,224.7 | 39,054.0 | 38,208.9 | 37,707.2 | 35,545.8 | 34,156.1 |
| 3 | 37,018.5 | 37,380.4 | 39,140.6 | 38,331.2 | 37,827.9 | 35,659.5 |
| 4 | 37,555.5 | 37,284.6 | 37,575.3 | 39,383.3 | 38,568.9 | 38,062.4 |
| 5 | 37,493.0 | 37,998.1 | 37,650.3 | 37,981.1 | 39,808.6 | 38,985.4 |
| 6 | 37,388.8 | 37,878.7 | 38,314.1 | 38,000.4 | 38,334.3 | 40,178.8 |
| 7 | 37,415.7 | 38,091.3 | 38,515.3 | 38,996.1 | 38,676.8 | 39,016.7 |
| 8 | 37,911.8 | 37,774.5 | 38,381.6 | 38,846.5 | 39,331.5 | 39,009.4 |
| Uncl. | 2,877.0 | 2,770.7 | 2,785.0 | 2,778.0 | 2,775.0 | 2,722.0 |
| Elementary Totals (1-8) | 304,486.8 | 307,053.1 | 308,844.8 | 308,103.6 | 305,538.0 | 301,895.4 |
| 9 | 38,004.8 | 39,076.2 | 38,858.3 | 39,521.5 | 40,000.2 | 40,499.6 |
| 10 | 35,168.3 | 37,592.9 | 38,577.2 | 38,399.8 | 39,055.1 | 39,528.2 |
| 11 | 32,641.4 | 33,850.9 | 36,114.1 | 37,095.8 | 36,925.2 | 37,555.4 |
| 12 | 30,479.8 | 31,059.3 | 32,147.2 | 34,330.1 | 35,263.3 | 35,101.1 |
| Uncl. | 418.4 | 410.6 | 422.5 | 433.1 | 438.6 | 442.9 |
| Secondary Totals (9-12) | 136,712.7 | 141,989.9 | 146,119.3 | 149,780.3 | 151,682.4 | 153,127.2 |
| Total (1-12) | 441,199.5 | 449,043.0 | 454,964.1 | 457,883.9 | 457,220.4 | 455,022.6 |
| Projected Graduates | | | | | | |
| Public Schools | 29,111 | 29,269 | 30,323 | 32,272 | 33,107 | 33,012 |
| Private & Parochial Schools | 1,767 | 1,771 | 1,835 | 1,952 | 2,003 | 1,997 |
| Total | 30,878 | 31,040 | 32,158 | 34,224 | 35,110 | 35,009 |

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* Average Daily Membership, attending

** Figures for 1966-67 are actual, not estimated

Source: Oregon Board of Education
Financial Services Division
Research and School Finance

## Table 18

## TOTAL ATTENDANCE* AND GRADUATE PROJECTIONS FOR OREGON 1966-75

| Year | Average Daily Membership, attending (9-12) | Graduates |
|---|---|---|
| 1966-67** | 136,712.7 | 29,111 |
| 1967-68 | 141,989.9 | 29,269 |
| 1968-69 | 146,119.3 | 30,323 |
| 1969-70 | 149,780.3 | 32,272 |
| 1970-71 | 151,682.4 | 33,107 |
| 1971-72 | 153,127.2 | 33,012 |
| 1972-73 | 154,059.1 | 33,604 |
| 1973-74 | 155,178.5 | 34,006 |
| 1974-75 | 157,869.8 | 34,513 |

* Based on ADMa, 9-12
** 1966-67 figures are actual not estimated, plus private schools

Source: Oregon Board of Education
Financial Services Division
Research and School Finance

Table 19

Oregon Counties in which a Community College is Located and Oregon Counties in which a Community College is not Located Respectively, Ranked by the Number of Community College Students Enrolled from the County as a Percent of the Estimated 18-29 Age Group Population for the County -- Fall 1967.

| Counties Having an Institution | | | Counties Not Having an Institution | | |
|---|---|---|---|---|---|
| Rank (1) | County (2) | Students Enrolled as a % of Est. * 18-29 Age Group (3) | Rank (4) | County (5) | Students Enrolled as a % of Est. 18-29 Age Group (6) |
| 1 | Clatsop | 16.51 | 1 | Benton | 6.03 |
| 2 | Lane | 14.14 | 2 | Crook | 5.69 |
| 3 | Malheur | 14.05 | 3 | Jefferson | 4.70 |
| 4 | Multnomah | 12.01 | 4 | Harney | 4.28 |
| 5 | Coos | 10.77 | 5 | Wallowa | 3.05 |
| 6 | Deschutes | 10.51 | 6 | Washington | 2.82 |
| 7 | Douglas | 10.10 | 7 | Tillamook | 2.49 |
| 8 | Umatilla | 8.72 | 8 | Wheeler | 2.49 |
| 9 | Linn | 6.70 | 9 | Morrow | 2.48 |
| 10 | Clackamas | 6.43 | 10 | Sherman | 2.26 |
| 11 | Marion | 5.68 | 11 | Grant | 2.20 |
| | | | 12 | Yamhill | 2.17 |
| | | | 13 | Baker | 1.98 |
| | | | 14 | Columbia | 1.96 |
| | | | 15 | Curry | 1.85 |
| | | | 16 | Polk | 1.77 |
| | | | 17 | Gilliam | 1.41 |
| | | | 18 | Lake | 1.30 |
| | | | 19 | Union | 0.96 |
| | | | 20 | Hood River | 0.90 |
| | | | 21 | Lincoln | 0.80 |
| | | | 22 | Wasco | 0.74 |
| | | | 23 | Klamath | 0.25 |
| | | | 24 | Jackson | 0.10 |
| | | | 25 | Josephine | 0.07 |

*Based on July 1, 1967 population estimates by the Center for Population Research & Census.

Source: "Higher Education Student Enrollment Distributions and Trends in Oregon. Fall 1967," The State of Oregon Educational Coordinating Council, May 1968

Table 20

ATTENDANCE AND GRADUATE PROJECTIONS BY COMMUNITY COLLEGE AREA

| | 1966-67** | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 |
|---|---|---|---|---|---|---|---|---|---|
| Blue Mountain | | | | | | | | | |
| 9-12 ADMa* | 3740.7 | 3882.1 | 3994.0 | 4093.2 | 4144.8 | 4183.9 | 4209.2 | 4239.5 | 4312.5 |
| High School Graduates | 832 | 837 | 867 | 923 | 947 | 944 | 961 | 973 | 987 |
| Central Oregon | | | | | | | | | |
| 9-12 ADMa | 3769.2 | 3918.9 | 4032.9 | 4133.9 | 4186.4 | 4226.3 | 4252.0 | 4282.9 | 4357.2 |
| High School Graduates | 736 | 741 | 767 | 816 | 838 | 835 | 850 | 860 | 873 |
| Clackamas | | | | | | | | | |
| 9-12 ADMa | 9170.0 | 9521.3 | 9797.6 | 10042.5 | 10169.8 | 10266.4 | 10328.8 | 10403.6 | 10583.7 |
| High School Graduates | 1942 | 1952 | 2022 | 2153 | 2208 | 2202 | 2241 | 2268 | 2302 |
| Clatsop | | | | | | | | | |
| 9-12 ADMa | 1736.2 | 1802.9 | 1852.8 | 1897.1 | 1920.2 | 1937.6 | 1948.9 | 1962.5 | 1995.0 |
| High School Graduates | 366 | 369 | 382 | 405 | 415 | 414 | 421 | 426 | 432 |
| Lane | | | | | | | | | |
| 9-12 ADMa | 15028.7 | 15595.5 | 16038.6 | 16431.4 | 16635.6 | 16790.5 | 16890.5 | 17010.7 | 17299.4 |
| High School Graduates | 3116 | 3132 | 3243 | 3447 | 3535 | 3525 | 3587 | 3629 | 3682 |
| Linn-Benton | | | | | | | | | |
| 9-12 ADMa | 7667.0 | 7957.4 | 8188.7 | 8393.7 | 8500.2 | 8581.1 | 8633.3 | 8696.0 | 8846.7 |
| High School Graduates | 1627 | 1636 | 1695 | 1804 | 1851 | 1845 | 1878 | 1901 | 1929 |
| Mt. Hood | | | | | | | | | |
| 9-12 ADMa | 9310.1 | 9669.5 | 9950.7 | 10200.0 | 10329.6 | 10428.0 | 10491.4 | 10567.7 | 10750.9 |
| High School Graduates | 1890 | 1900 | 1968 | 2094 | 2149 | 2142 | 2181 | 2207 | 2240 |
| Portland | | | | | | | | | |
| 9-12 ADMa | 41489.5 | 42908.9 | 44021.3 | 45007.6 | 45520.0 | 45909.3 | 46160.3 | 46461.9 | 47186.9 |
| High School Graduates | 9195 | 9237 | 9530 | 10070 | 10301 | 10275 | 10439 | 10550 | 10691 |

Table 20 (Continued)

| | 1966-67** | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 |
|---|---|---|---|---|---|---|---|---|---|
| Salem | | | | | | | | | |
| 9-12 ADMa | 7174.4 | 7421.5 | 7611.9 | 7780.7 | 7868.4 | 7935.0 | 7977.9 | 8029.5 | 8153.6 |
| High School Graduates | 1660 | 1668 | 1721 | 1819 | 1860 | 1856 | 1885 | 1905 | 1931 |
| Proposed ADMa*** | 14016.6 | 14500.1 | 14877.1 | 15211.3 | 15385.0 | 15516.9 | 15602.0 | 15704.2 | 15949.9 |
| Graduates (proposed ADMa) | 3091 | 3105 | 3204 | 3388 | 3467 | 3458 | 3514 | 3552 | 3600 |
| Southwestern | | | | | | | | | |
| 9-12 ADMa | 4555.5 | 4728.3 | 4865.8 | 4987.7 | 5051.0 | 5099.1 | 5130.2 | 5167.4 | 5257.1 |
| High School Graduates | 927 | 931 | 964 | 1026 | 1053 | 1050 | 1069 | 1081 | 1098 |
| Treasure Valley | | | | | | | | | |
| 9-12 ADMa | 1801.1 | 1874.3 | 1928.8 | 1977.1 | 2002.2 | 2021.3 | 2033.6 | 2048.4 | 2083.9 |
| High School Graduates | 388 | 389 | 403 | 429 | 440 | 439 | 447 | 452 | 459 |
| Umpqua | | | | | | | | | |
| 9-12 ADMa | 5191.5 | 5378.9 | 5526.4 | 5657.1 | 5725.0 | 5776.5 | 5809.8 | 5849.9 | 5945.9 |
| High School Graduates | 1060 | 1066 | 1102 | 1168 | 1196 | 1193 | 1213 | 1227 | 1244 |
| Totals | | | | | | | | | |
| 9-12 ADMa | 110633.9 | 114659.5 | 117809.5 | 120602.0 | 122053.2 | 123155.0 | 123865.9 | 124720.0 | 126772.8 |
| High School Graduates | 23739 | 23858 | 24664 | 26154 | 28400 | 26720 | 27172 | 27479 | 27868 |
| Proposed ADMa | 117476.1 | 121738.1 | 125074.7 | 128032.7 | 129569.8 | 130736.9 | 131490.0 | 132394.7 | 134569.1 |
| Graduates (proposed ADMa) | 25170 | 25295 | 26147 | 27723 | 28400 | 28322 | 28809 | 29126 | 29537 |

* Average Daily Membership, attending (grades 9-12)

** 1966-67 figures are actual, not estimated, plus private schools

*** The geographical area of the community college district has been identified. Action to form area district is pending.

Source: Oregon Board of Education
Financial Services Division
Research and School Finance

Table 21

REIMBURSABLE FTE--ACTUAL PROJECTIONS

| Community | Actual FTE | | | | | Projected FTE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| College | 63-64 | 64-65 | 65-66 | 66-67 | 67-68* | 68-69 | 69-70 | 70-71 | 71-72 | 72-73 | 73-74 | 74-75 | 75-76 | 76-77 |
| BMCC | 274 | 415 | 574 | 591 | 700 | 787 | 873 | 959 | 1,046 | 1,046 | 1,046 | 1,046 | 1,046 | 1,046 |
| COCC | 415 | 420 | 615 | 598 | 609 | 723 | 836 | 946 | 1,057 | 1,057 | 1,057 | 1,057 | 1,057 | 1,057 |
| Clackamas | 99 | 54 | 117 | 122 | 510 | 880 | 1,250 | 1,650 | 1,853 | 2,056 | 2,259 | 2,462 | 2,665 | 2,665 |
| Clatsop | 291 | 334 | 448 | 499 | 596 | 662 | 727 | 814 | 814 | 814 | 814 | 814 | 814 | 814 |
| Lane | 555 | 563 | 1,284 | 2,165 | 2,715 | 3,470 | 4,224 | 4,765 | 5,303 | 5,841 | 6,378 | 6,378 | 6,378 | 6,378 |
| L-B | - | - | - | - | 243 | 465 | 687 | 909 | 1,130 | 1,352 | 1,574 | 1,795 | 2,017 | 2,239 |
| Mt. Hood | - | - | - | 407 | 1,175 | 1,694 | 2,212 | 2,785 | 3,202 | 3,619 | 4,036 | 4,453 | 4,871 | 4,871 |
| Portland | 830 | 1,430 | 2,592 | 3,623 | 4,383 | 5,450 | 6,517 | 7,584 | 8,652 | 9,720 | 10,788 | 11,857 | 12,926 | 13,995 |
| Salem | 391 | 453 | 607 | 702 | 877 | 1,139 | 1,400 | 1,700 | 1,984 | 1,984 | 1,984 | 1,984 | 1,984 | 1,984 |
| SWOCC | 459 | 478 | 610 | 761 | 775 | 900 | 1,025 | 1,150 | 1,275 | 1,275 | 1,275 | 1,275 | 1,275 | 1,275 |
| TVCC | 294 | 379 | 716 | 1,021 | 916 | 1,008 | 1,100 | 1,160 | 1,160 | 1,160 | 1,160 | 1,160 | 1,160 | 1,160 |
| Umpqua | - | 153 | 262 | 431 | 564 | 697 | 830 | 940 | 1,050 | 1,160 | 1,270 | 1,375 | 1,375 | 1,375 |
| Totals | 3,608 | 4,679 | 7,825 | 10,920 | 14,063 | 17,875 | 21,681 | 25,362 | 28,526 | 31,084 | 33,641 | 35,656 | 37,568 | 38,859 |

* Estimated

Note--The above figures are subject to some revision based upon Reimbursable FTE as reported in Fall of 1968

Source: Oregon Board of Education
Division of Community Colleges
and Vocational Education

# SECTION V

## SELECTED EMPLOYMENT DATA

These data constitute a representative cross section of the kinds of employment information that are available through regular channels at the present time. The reader should also examine, however, the State of Oregon Department of Employment's 1966 publication, Technological Change and its Impact on the Oregon Labor Force, and its periodically revised printings.

Until such time as a coordinated, systematic process of collecting and presenting employment information for occupational education planning is developed and implemented, the planner either must work with a multitude of data such as these or, if he is at the local level, rely in large part upon the sources that are available to him in his local area.

Table 26 does present a minor departure from materials generally available. It shows county labor force data in a time series, including numerical and percentage components of change by occupational grouping for each county. However, the data provide no information that will identify the industries or specific occupations that are combined within the context of the gross figures. It does point to some trends and gives the planner some clues as to where it might be advisable to look further. On the other hand, since it tends to place all its emphasis on numerical or percentage increase or decrease, it could just as well direct attention away from some occupations where, despite relatively static totals, important occupational education needs do exist.

Table 22

## TOTAL POPULATION, TOTAL LABOR FORCE, AND LABOR FORCE PARTICIPATION RATES FOR PERSONS 16 YEARS AND OVER, MOUNTAIN AND PACIFIC STATES, 1960 to 1980

(numbers in thousands)

| Region and State | Total Population[1] | | | Total Labor Force[1] | | | Labor Force participation rates (%) | | | Percent Change[2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Actual | Projected | | Actual | Projected | | Actual | Projected | | Population | | Labor Force | |
| | 1960 (April 1) | 1970 (July 1) | 1980 (July 1) | 1960 (April 1) | 1970 (annual average) | 1980 (annual average) | 1960 | 1970 | 1980 | 1960-70 | 1970-80 | 1960-70 | 1970-80 |
| Mountain | 4364 | 5679 | 7052 | 2520 | 3491 | 4443 | 57.7 | 61.5 | 63.0 | 30.1 | 24.2 | 38.5 | 27.3 |
| Montana | 435 | 496 | 573 | 249 | 301 | 353 | 57.2 | 60.7 | 61.6 | 14.0 | 15.5 | 20.9 | 17.3 |
| Idaho | 423 | 489 | 577 | 245 | 309 | 377 | 57.9 | 63.2 | 65.3 | 15.6 | 18.0 | 26.1 | 22.0 |
| Wyoming | 214 | 247 | 292 | 128 | 156 | 185 | 59.8 | 63.2 | 63.4 | 15.4 | 18.2 | 21.9 | 18.6 |
| Colorado | 1156 | 1473 | 1780 | 670 | 911 | 1137 | 58.0 | 61.8 | 63.9 | 27.4 | 20.8 | 36.0 | 24.8 |
| New Mexico | 573 | 711 | 936 | 324 | 425 | 578 | 56.5 | 59.8 | 61.8 | 24.1 | 31.6 | 31.2 | 36.0 |
| Arizona | 827 | 1236 | 1638 | 466 | 727 | 993 | 56.3 | 58.8 | 60.6 | 49.5 | 32.5 | 56.0 | 36.6 |
| Utah | 542 | 709 | 892 | 312 | 448 | 580 | 57.6 | 63.2 | 65.0 | 30.8 | 25.8 | 43.6 | 29.5 |
| Nevada | 194 | 318 | 364 | 126 | 214 | 240 | 64.9 | 67.3 | 65.9 | 63.9 | 14.5 | 69.8 | 12.1 |
| Pacific | 14380 | 18478 | 23047 | 8526 | 11372 | 14278 | 59.3 | 61.5 | 62.0 | 28.5 | 24.7 | 33.4 | 25.6 |
| Washington | 1915 | 2201 | 2577 | 1109 | 1339 | 1596 | 57.9 | 60.8 | 61.9 | 14.9 | 17.1 | 20.7 | 19.2 |
| Oregon | 1194 | 1392 | 1588 | 676 | 810 | 931 | 56.6 | 58.2 | 58.6 | 16.6 | 14.1 | 19.8 | 14.9 |
| California | 10726 | 14221 | 18094 | 6379 | 8784 | 11251 | 59.5 | 65.9 | 62.2 | 32.6 | 27.2 | 37.7 | 28.1 |
| Alaska | 143 | 170 | 213 | 98 | 112 | 133 | 68.5 | 65.9 | 62.4 | 18.9 | 25.3 | 14.3 | 18.8 |
| Hawaii | 402 | 494 | 565 | 264 | 327 | 367 | 65.7 | 66.2 | 63.8 | 22.9 | 16.4 | 23.9 | 12.2 |

[1] Does not include the Armed Forces abroad.

[2] Changes for 1960-70 are not strictly comparable with those for 1970-80 because the 1960 data relate to the decennial census date of April 1, the population projections relate to July 1, and the labor force projections are annual averages based on the Current Population Survey.

Note: Population projections are from the U.S. Department of Commerce, Bureau of the Census, and are consistent with the projections in Current Population Reports, Series P-25, Nos. 286 and 326, Series II-B. All other data are from the U.S. Department of Labor, Bureau of Labor Statistics.

Source: U.S. Department of Labor, Manpower Report of the President, 1968.

## Table 23

## OREGON EMPLOYMENT, BY OCCUPATIONAL GROUPS, 1966, WITH PROJECTED NEEDS TO 1970

| Major occupational group | Employment 1966 | New Workers Needed 1966-1970 | Percent of 1966 Employment |
|---|---|---|---|
| Professional | 65,349 | 12,578 | 19.3 |
| Technical | 16,917 | 3,443 | 20.4 |
| Managerial | 42,647 | 5,115 | 12.0 |
| Clerical | 97,915 | 19,383 | 19.8 |
| Sales | 44,906 | 12,217 | 27.2 |
| Service | 75,145 | 14,879 | 19.9 |
| Skilled - manufacturing | 29,908 | 4,768 | 16.0 |
| Skilled - nonmanufacturing | 62,732 | 8,825 | 14.1 |
| Semiskilled - manufacturing | 38,479 | 5,205 | 13.5 |
| Semiskilled - nonmanufacturing | 52,421 | 7,030 | 13.4 |
| Unskilled - manufacturing | 35,560 | 3,832 | 10.8 |
| Unskilled - nonmanufacturing | 27,633 | 3,528 | 12.8 |
| Total | 589,612 | 100,813 | 17.1 |

Source: "Oregon Labor Force", November 1966.
Department of Employment

## Table 24

## PROJECTION OF OREGON EMPLOYMENT, BY MAJOR SIC GROUPS, 1960 - 1985

| Major SIC Group | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|---|
| Contract construction | 26,100 | 27,000 | 28,000 | 29,000 | 30,000 | 31,000 |
| Food and Kindred products | 21,054 | 21,400 | 22,000 | 23,500 | 25,000 | 26,500 |
| Textile mill products | 2,467 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 |
| Apparel | 2,744 | 2,800 | 3,000 | 3,150 | 3,300 | 3,450 |
| Lumber and wood products | 71,749 | 68,000 | 65,000 | 61,000 | 57,000 | 53,000 |
| Furniture and fixtures | 2,273 | 2,400 | 2,500 | 2,600 | 2,700 | 2,800 |
| Paper and allied products | 7,310 | 7,900 | 9,000 | 9,900 | 10,700 | 11,550 |
| Printing, publishing & allied | 5,307 | 5,500 | 5,800 | 6,100 | 6,400 | 6,700 |
| Primary metal industries | 5,751 | 6,000 | 7,000 | 8,000 | 9,000 | 10,000 |
| Fabricated metal products | 5,013 | 5,200 | 5,800 | 6,400 | 7,000 | 7,600 |
| Machinery, except electrical | 5,242 | 5,400 | 6,000 | 6,600 | 7,200 | 7,800 |
| Electrical machinery | 4,393 | 6,300 | 8,000 | 9,000 | 10,000 | 11,000 |
| Transportation equipment | 3,469 | 4,000 | 4,500 | 5,000 | 5,500 | 6,000 |
| Transportation | 29,500 | 28,000 | 29,000 | 29,000 | 29,000 | 29,000 |
| Communication & utilities | 14,900 | 15,000 | 16,000 | 16,000 | 16,000 | 16,000 |
| Wholesale trade | 31,200 | 32,900 | 36,000 | 38,500 | 41,000 | 43,500 |
| Retail trade | 82,400 | 85,400 | 87,000 | 90,000 | 93,000 | 100,000 |
| Finance, insurance, realty | 20,700 | 24,000 | 27,300 | 29,650 | 32,000 | 34,350 |
| Services and miscellaneous | 63,500 | 75,000 | 78,750 | 85,875 | 93,000 | 100,000 |
| Manufacturing total | 144,400 | 145,400 | 150,900 | 155,000 | 158,600 | 162,450 |
| Agriculture | 76,200 | 72,300 | 69,500 | 66,250 | 65,000 | 65,000 |
| Self-employed, non-agriculture | 96,900 | 99,200 | 101,500 | 105,750 | 110,000 | 115,000 |
| Non-classified manufacture | - | 1,150 | 2,200 | 3,000 | 3,400 | 4,000 |
| Industry "X" | - | - | 11,850 | 18,175 | 25,100 | 29,400 |
| Total | 682,300 | 720,000 | 760,000 | 804,000 | 850,000 | 895,000 |

Source: "Changes in Oregon Employment" - Oregon Department of Planning and Development, 1964

Table 25

NON-AGRICULTURAL EMPLOYMENT IN OREGON, BY MAJOR INDUSTRY GROUPS, 1947 - 1962
(Wage and salary workers) (Thousands)

| Major industry group | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contract construction | 24.6 | 25.5 | 23.2 | 26.3 | 27.4 | 25.1 | 24.0 | 22.6 | 22.6 | 24.8 | 23.1 | 23.9 | 25.6 | 26.1 | 24.5 | 26.2 |
| Food and kindred products | 19.1 | 18.0 | 18.0 | 17.7 | 19.0 | 17.9 | 18.4 | 17.6 | 17.8 | 18.6 | 18.0 | 20.8 | 21.4 | 21.1 | 20.8 | 20.9 |
| Textile mill products | 5.6 | 5.4 | 5.1 | 4.9 | 4.9 | 5.1 | 5.3 | 5.2 | 5.2 | 2.6 | 2.5 | 2.3 | 2.5 | 2.5 | 2.0 | 2.3 |
| Apparel products | - | - | - | - | - | - | - | - | - | 2.6 | 2.7 | 2.5 | 2.7 | 2.7 | 2.6 | 2.7 |
| Lumber and wood products | 73.9 | 80.3 | 71.7 | 80.0 | 86.4 | 84.5 | 81.5 | 76.1 | 82.2 | 79.0 | 71.2 | 69.8 | 74.7 | 71.9 | 67.1 | 67.2 |
| Furniture and fixtures | 3.6 | 3.8 | 3.1 | 3.2 | 3.3 | 3.3 | 2.4 | 2.1 | 2.1 | 2.2 | 2.1 | 2.0 | 2.2 | 2.2 | 2.4 | 2.4 |
| Paper and allied products | 4.8 | 5.1 | 5.2 | 5.5 | 6.0 | 6.1 | 6.4 | 6.5 | 6.6 | 7.1 | 7.1 | 7.0 | 7.6 | 7.3 | 7.3 | 7.3 |
| Printing, publishing and allied | 4.7 | 5.0 | 5.1 | 5.2 | 5.2 | 5.2 | 5.1 | 5.0 | 5.1 | 5.2 | 5.3 | 5.3 | 5.4 | 5.3 | 5.4 | 5.3 |
| Primary metal industries | 6.2 | 6.5 | 6.0 | 6.9 | 7.9 | 7.6 | 7.7 | 8.3 | 8.8 | 4.7 | 5.0 | 5.4 | 5.7 | 5.7 | 5.5 | 5.4 |
| Fabricated metal products | - | - | - | - | - | - | - | - | - | 5.3 | 5.2 | 4.7 | 5.0 | 5.0 | 4.7 | 4.7 |
| Machinery, except electrical | 4.5 | 4.6 | 3.6 | 4.0 | 5.2 | 5.0 | 5.1 | 4.4 | 5.0 | 5.3 | 4.8 | 4.6 | 5.2 | 5.2 | 4.9 | 5.4 |

Table 25 (Continued)

| Major industry group | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Electrical machinery | - | - | - | - | - | - | - | - | - | 1.8 | 2.3 | 2.5 | 3.8 | 4.5 | 5.4 | 6.1 |
| Transportation equipment | 4.0 | 2.1 | 1.5 | 1.6 | 2.7 | 3.5 | 3.9 | 3.0 | 3.1 | 4.2 | 3.2 | 3.0 | 3.3 | 3.5 | 3.5 | 3.9 |
| Misceallaneous manufacturing | 6.4 | 6.8 | 6.0 | 6.5 | 7.1 | 7.3 | 7.7 | 7.5 | 7.4 | 6.3 | 6.3 | 4.2 | 4.6 | 4.7 | 4.8 | 3.1 |
| Transportation, communication, util. | 45.7 | 46.6 | 45.6 | 46.5 | 48.5 | 48.8 | 48.3 | 46.0 | 47.2 | 48.8 | 47.6 | 45.2 | 44.6 | 44.4 | 43.2 | 43.1 |
| Wholesale trade | 23.7 | 25.6 | 25.4 | 25.1 | 27.3 | 27.6 | 28.4 | 28.2 | 29.8 | 31.0 | 30.8 | 28.8 | 30.5 | 31.2 | 30.6 | 31.0 |
| Retail trade | 73.8 | 75.1 | 73.7 | 75.5 | 77.5 | 79.7 | 81.2 | 78.7 | 81.0 | 83.0 | 78.9 | 74.9 | 79.1 | 82.4 | 82.2 | 85.0 |
| Finance, insurance, real estate | 13.1 | 13.8 | 13.8 | 14.7 | 15.4 | 16.4 | 17.2 | 17.2 | 17.6 | 18.5 | 18.5 | 19.5 | 19.7 | 20.7 | 21.5 | 22.6 |
| Services miscellaneous | 46.2 | 46.4 | 45.6 | 46.6 | 49.0 | 51.8 | 52.6 | 52.0 | 55.0 | 57.1 | 56.5 | 56.9 | 59.2 | 63.5 | 66.6 | 70.5 |
| Manufacturing total | 132.8 | 137.4 | 125.3 | 135.5 | 147.7 | 145.5 | 143.5 | 135.7 | 143.3 | 144.9 | 135.6 | 136.6 | 146.7 | 144.4 | 139.1 | 141.4 |

Source: "Changes in Oregon Employment" - Oregon Department of Planning and Development, 1964

Table 26

LABOR FORCE 1960-1966
BY COUNTY

| Industry | Baker County 1960 | 1966 | Change | Percent Change | Benton County 1960 | 1966 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 6,490 | 5,820 | -670 | -10 | 15,820 | 20,640 | 4,820 | 30 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unemployment | 340 | 220 | -120 | -35 | 610 | 790 | 180 | 29 |
| Percent of Labor Force | 5.2 | 3.8 | -1.4 | -26 | 3.9 | 3.8 | -.1 | -2 |
| Employment | 6,150 | 5,600 | -550 | -9 | 15,210 | 19,850 | 4,640 | 30 |
| Agricultural | 1,360 | 840 | -520 | -38 | 960 | 1,190 | 230 | 23 |
| Nonagricultural | 4,790 | 4,760 | -30 | -.6 | 14,250 | 18,660 | 4,410 | 30 |
| Self-employed, Unpaid Family & Domestics | 770 | 680 | -90 | -11 | 2,290 | 2,560 | 270 | 11 |
| Wage & Salary Workers | 4,020 | 4,080 | 60 | 1 | 11,960 | 16,100 | 4,140 | 35 |
| Manufacturing | 820 | 780 | -40 | -4 | 2,370 | 2,590 | 220 | 9 |
| Lumber and Wood Products | 510 | 530 | 20 | 3 | 1,780 | 1,760 | -20 | -1 |
| Other Manufacturing | 310 | 210 | -90 | -75 | 590 | 830 | 240 | 40 |
| Non-Manufacturing | 3,200 | 3,300 | 100 | 3 | 9,590 | 13,510 | 3,920 | 40 |
| Contract Construction | 760 | 320 | -440 | -57 | 550 | 500 | -50 | -9 |
| Trans.-Comm.-Utilities | 370 | 380 | 10 | 2 | 490 | 570 | 80 | 16 |
| Wholesale & Retail Trade | 830 | 940 | 110 | 13 | 1,580 | 2,170 | 590 | 37 |
| Finance, Insurance & Real Estate | 170 | 160 | -10 | -5 | 340 | 410 | 70 | 20 |
| Service & Miscellaneous | 520 | 520 | 0 | 0 | 1,290 | 1,780 | 490 | 37 |
| Government | 550 | 940 | 390 | 70 | 5,340 | 8,080 | 2,740 | 51 |

Table 26 (Continued)

| Industry | Clatsop County 1960 | 1966 | Change | Percent Change | Columbia County 1960 | 1966 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 9,890 | 12,070 | 2,180 | 22 | 6,480 | 7,140 | 660 | 10 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unemployment | 690 | 620 | - 70 | - 10 | 460 | 370 | - 90 | - 19 |
| Percent of Labor Force | 7.0 | 5.1 | - 1.9 | - 27 | 7.1 | 5.2 | - 1.9 | - 26 |
| Employment | 9,200 | 11,450 | 2,250 | 2 | 6,020 | 6,770 | 750 | 12 |
| Agricultural | 860 | 580 | - 280 | - 32 | 1,350 | 810 | 540 | 40 |
| Nonagricultural | 8,340 | 10,870 | 2,530 | 30 | 4,670 | 5,960 | 1,290 | 27 |
| Self-employed, Unpaid, & Domestics | 1,330 | 1,540 | 210 | 15 | 750 | 850 | 100 | 13 |
| Wage & Salary Workers | 7,010 | 9,330 | 2,320 | 33 | 3,920 | 5,110 | 1,190 | 30 |
| Manufacturing | 2,670 | 2,690 | 20 | .9 | 1,880 | 2,450 | 570 | 30 |
| Food Products | 1,210 | 1,180 | - 30 | - 2 | | | | |
| Lumber & Wood Products | 1,300 | 1,170 | - 130 | - 10 | 800 | 1,300 | 500 | 62 |
| Other Manufacturing | 160 | 340 | 180 | 112 | 1,080 | 1,150 | 150 | 13 |
| Nonmanufacturing | 4,340 | 6,640 | 2,300 | 52 | 2,040 | 2,660 | 620 | 30 |
| Contract Construction | 180 | 1,440 | 1,260 | 700 | 80 | 370 | 290 | 362 |
| Trans.-Comm.-Utilities | 490 | 550 | 60 | 12 | 240 | 280 | 40 | 16 |
| Wholesale & Retail Trade | 1,230 | 1,570 | 220 | 17 | 500 | 720 | 220 | 44 |
| Finance, Ins., & Real Estate | 140 | 250 | 110 | 78 | 60 | 110 | 50 | 83 |
| Service & Miscellaneous | 820 | 1,240 | 420 | 51 | 210 | 350 | 140 | 66 |
| Government | 1,480 | 1,590 | 110 | 7 | 950 | 830 | - 120 | - 12 |

Table 26 (Continued)

| Industry | Coos County 1960 | Coos County 1966 | Coos County Change | Coos County Percent Change | Crook County 1962 | Crook County 1966 | Crook County Change | Crook County Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 20,780 | 21,990 | 1,210 | 5 | 3,760 | 4,080 | 320 | 8 |
| Workers in Labor-Mgt. Disputes | 0 | 10 | 10 | -- | 0 | 40 | 40 | 40 |
| Unemployment | 1,460 | 1,410 | - 50 | - 3 | 240 | 280 | 40 | 16 |
| Percent of Labor Force | 7.0 | 6.4 | - .6 | - 8 | 6.4 | 6.9 | .5 | 7 |
| Employment | 19,320 | 20,570 | 1,250 | 6 | 3,520 | 3,760 | 240 | 6 |
| Agricultural | 990 | 830 | - 160 | - 16 | 650 | 630 | - 20 | - 3 |
| Nonagricultural | 18,330 | 19,740 | 1,410 | 7 | 2,870 | 3,130 | 260 | 9 |
| Self-employed, unpaid, & Domestics | 2,930 | 2,800 | - 130 | - 4 | 450 | 450 | 0 | 0 |
| Wage and Salary Workers | 15,400 | 16,940 | 1,540 | 10 | 2,420 | 2,680 | 260 | 10 |
| Manufacturing | 6,910 | 7,000 | 90 | 1 | 1,120 | 1,160 | 40 | 3 |
| Food Products | 240 | 490 | 250 | 104 | | | | |
| Lumber & Wood Products | 6,220 | 6,020 | - 200 | - 3 | 1,090 | 1,130 | 40 | 3 |
| Paper Products | 130 | 230 | 100 | 76 | | | | |
| Other Manufacturing | 320 | 490 | 170 | 53 | 30 | 30 | 0 | 0 |
| Non-Manufacturing | 8,490 | 9,940 | 1,450 | 17 | 1,300 | 1,520 | 220 | 16 |
| Contract Construction | 470 | 580 | 110 | 23 | 20 | 40 | 20 | 100 |
| Trans.-Comm.-Utilities | 1,620 | 1,460 | - 160 | - 9 | 80 | 80 | 0 | 0 |
| Wholesale & Retail Trade | 2,390 | 2,810 | 420 | 17 | 390 | 490 | 100 | 25 |
| Finance, Ins., & Real Estate | 450 | 690 | 240 | 53 | 70 | 80 | 10 | 14 |
| Service & Miscellaneous | 1,660 | 2,030 | 370 | 22 | 220 | 300 | 80 | 36 |
| Government | 1,900 | 2,370 | 470 | 24 | 520 | 530 | 10 | 1 |

Table 26 (Continued)

| Industry | Curry County 1960 | 1966 | Change | Percent Change | Deschutes County 1961 | 1966 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 4,620 | 4,710 | 90 | 1 | 9,160 | 10,890 | 1,730 | 18 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unemployment | 210 | 260 | 50 | 23 | 780 | 570 | - 210 | - 26 |
| Percent of Labor Force | 4.5 | 5.5 | 1.0 | 2 | 8.5 | 5.2 | - 3.3 | - 38 |
| Employment | 4,410 | 4,450 | 40 | 90 | 8,380 | 10,280 | 1,900 | 2 |
| Agricultural | 390 | 350 | - 40 | -10 | 1,100 | 820 | - 280 | - 25 |
| Nonagricultural | 4,020 | 4,100 | 80 | 1 | 7,280 | 9,460 | 2,180 | 29 |
| Self-employed, Unpaid, & Domestics | 640 | 580 | - 60 | - 9 | 1,190 | 1,330 | 140 | 11 |
| Wage & Salary Workers | 3,380 | 3,520 | 140 | 4 | 6,090 | 8,130 | 2,040 | 33 |
| Manufacturing | 1,910 | 1,750 | - 160 | - 8 | 1,590 | 2,240 | 650 | 40 |
| Lumber & Wood Products | 1,880 | 1,650 | 230 | 12 | 1,250 | 1,700 | 450 | 36 |
| Other Manufacturing | 30 | 100 | 70 | 233 | 340 | 540 | 200 | 58 |
| Non-Manufacturing | 1,470 | 1,770 | 300 | 20 | 4,500 | 5,890 | 1,390 | 30 |
| Contract Construction | 140 | 110 | - 30 | - 21 | 220 | 550 | 330 | 150 |
| Transp.-Comm.-Utilities | 80 | 90 | 10 | 12 | 470 | 500 | 30 | 6 |
| Wholesale & Retail Trade | 510 | 580 | 70 | 13 | 1,400 | 1,930 | 530 | 37 |
| Finance, Ins., & Real Estate | 80 | 120 | 40 | 50 | 270 | 360 | 90 | 33 |
| Service & Miscellaneous | 210 | 250 | 40 | 19 | 720 | 1,040 | 320 | 44 |
| Government | 450 | 620 | 170 | 37 | 1,420 | 1,510 | 90 | 6 |

Table 26 (Continued)

| Industry | Douglas County 1960 | 1966 | Change | Percent Change | Gilliam County 1962 | 1964 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 24,840 | 28,850 | 4,010 | 16 | 1,080 | 1,630 | 550 | 50 |
| Workers in Labor-Management Disputes | 0 | 40 | 40 | -- | 0 | 10 | 10 | -- |
| Unemployment | 1,770 | 26,630 | 24,860 | 1,404 | 80 | 70 | - 10 | - 12 |
| Percent of Labor Force | 7.1 | 7.6 | .5 | 7 | 7.4 | 4.3 | - 3.1 | - 41 |
| Employment | 23,070 | 2,180 | - 20,890 | - 90 | 1,000 | 1,550 | 550 | 55 |
| Agricultural | 1,450 | 1,520 | 70 | 4 | 440 | 430 | - 10 | - 2 |
| Nonagricultural | 21,620 | 25,110 | 3,490 | 16 | 560 | 1,120 | 560 | 100 |
| Self-employed, Unpaid & Domestcis | 3,450 | 4,090 | 640 | 18 | 90 | 170 | 80 | 88 |
| Wage & Salary Workers | 18,170 | 21,020 | 2,850 | 15 | 470 | 950 | 480 | 102 |
| Manufacturing | 8,900 | 8,580 | - 320 | - 3 | 20 | 10 | - 10 | - 50 |
| Food Products | 160 | 230 | 70 | 43 |  |  |  |  |
| Lumber & Wood Products | 8,150 | 7,380 | - 770 | - 9 |  |  |  |  |
| Other Manufacturing | 590 | 630 | 40 | 6 |  |  |  |  |
| Non-Manufacturing | 9,270 | 12,440 | 3,170 | 34 | 460 | 940 | 480 | 104 |
| Mining | 180 | 300 | 120 | 66 |  |  |  |  |
| Contract Construction | 540 | 950 | 410 | 75 | 50 | 470 | 420 | 840 |
| Transportation-Comm.-Utilities | 850 | 910 | 60 | 7 | 60 | 50 | - 10 | - 16 |
| Wholesale & Retail Trade | 2,590 | 3,390 | 800 | 30 | 140 | 160 | 20 | 14 |
| Finance, Insurance & Real Estate | 430 | 740 | 310 | 72 | 20 | 30 | 10 | 50 |
| Service & Miscellaneous | 1,450 | 2,080 | 630 | 43 | 50 | 70 | 20 | 40 |
| Government | 3,230 | 4,070 | 840 | 26 | 140 | 160 | 20 | 14 |

Table 26 (Continued)

| Industry | Grant County 1960 | Grant County 1966 | Grant County Change | Grant County Percent Change | Harney County 1960 | Harney County 1966 | Harney County Change | Harney County Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 2,970 | 2,890 | -80 | -2 | 2,600 | 3,500 | 900 | 34 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unemployment | 170 | 170 | 0 | 0 | 100 | 100 | 0 | 0 |
| Percent of Labor Force | 5.7 | 5.9 | .2 | 3 | 3.8 | 2.9 | -.9 | -23 |
| Employment | 2,800 | 2,720 | -80 | -2 | 2,500 | 3,400 | 900 | 36 |
| Agricultural | 470 | 540 | 70 | 14 | 550 | 610 | 60 | 10 |
| Nonagricultural | 2,330 | 2,180 | -150 | -6 | 1,950 | 2,790 | 840 | 43 |
| Self-employed, Unpaid & Domestice | 370 | 310 | -60 | -16 | 300 | 400 | 100 | 33 |
| Wage & Salary Workers | 1,960 | 1,870 | -90 | -4 | 1,650 | 2,390 | 740 | 44 |
| Manufacturing | 870 | 610 | -260 | -29 | 580 | 830 | 250 | 43 |
| Lumber & Wood Products | 830 | 580 | -250 | -30 | 550 | 820 | 270 | 49 |
| Other Manufacturing | 40 | 30 | -10 | -25 | 30 | 10 | -20 | -66 |
| Non-Manufacturing | 1,090 | 1,260 | 170 | 15 | 1,070 | 1,560 | 490 | 45 |
| Contract Construction | 30 | 70 | 40 | 133 | 50 | 70 | 20 | 40 |
| Trans.-Comm.-Utilities | 100 | 130 | 30 | 30 | 90 | 110 | 20 | 22 |
| Wholesale & Retail Trade | 260 | 300 | 40 | 15 | 290 | 380 | 90 | 31 |
| Finance, Insurance & Real Estate | 40 | 40 | 0 | 0 | 50 | 70 | 20 | 40 |
| Service & Miscellaneous | 170 | 130 | -40 | -23 | 150 | 310 | 160 | 106 |
| Government | 490 | 590 | 10 | 2 | 440 | 620 | 180 | 40 |

Table 26 (Continued)

| Industry | Hood River County 1960 | 1966 | Change | Percent Change | Jackson County 1960 | 1966 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 5,420 | 5,750 | 330 | 6 | 26,260 | 34,600 | 8,340 | 31 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 30 | 0 | - 30 | -100 |
| Unemployment | 470 | 400 | - 70 | - 14 | 1,640 | 2,160 | 520 | 31 |
| Percent of Labor Force | 8.6 | 7.0 | -1.6 | -18 | 6.2 | 6.2 | 0 | 0 |
| Employment | 4,950 | 5,350 | 400 | 8 | 24,590 | 32,440 | 7,850 | 31 |
| Agricultural | 1,220 | 1,070 | - 150 | - 12 | 3,520 | 2,630 | - 890 | - 25 |
| Nonagricultural | 3,730 | 4,280 | 550 | 14 | 21,070 | 29,810 | 8,740 | 41 |
| Self-employed, Unpaid, & Domestics | 690 | 620 | - 70 | - 10 | 3,370 | 4,590 | 1,220 | 36 |
| Wage & Salary Workers | 3,040 | 3,660 | 620 | 20 | 17,700 | 25,220 | 7,520 | 42 |
| Manufacturing | 960 | 1,110 | 150 | 15 | 3,050 | 6,430 | 3,380 | 110 |
| Food Products | 340 | 410 | 70 | 20 | 410 | 480 | 70 | 17 |
| Lumber & Wood Products | 480 | 580 | 100 | 20 | 3,950 | 4,920 | 970 | 24 |
| Other Manufacturing | 140 | 120 | - 20 | - 14 | 690 | 1,030 | 340 | 49 |
| Non-Manufacturing | 2,080 | 2,550 | 470 | 22 | 12,650 | 18,790 | 6,140 | 48 |
| Contract Construction | 100 | 220 | 120 | 120 | 850 | 1,280 | 430 | 50 |
| Trans.-Comm.-Utilities | 270 | 380 | 110 | 40 | 1,440 | 1,720 | 280 | 19 |
| Wholesale & Retail Trade | 840 | 910 | 70 | 8 | 4,030 | 5,700 | 1,670 | 41 |
| Finance, Ins., & Real Estate | 80 | 100 | 20 | 25 | 580 | 1,360 | 780 | 134 |
| Service & Miscellaneous | 290 | 340 | 50 | 17 | 2,300 | 3,470 | 1,170 | 30 |
| Government | 500 | 600 | 100 | 20 | 3,450 | 5,260 | 1,810 | 52 |

Table 26 (Continued)

| Industry | Jefferson County 1962 | 1966 | Change | Percent Change | Josephine County 1960 | 1966 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 3,490 | 3,780 | 290 | 8 | 10,590 | 13,040 | 2,450 | 23 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unemployment | 200 | 240 | 40 | 20 | 1,090 | 1,130 | 40 | 3 |
| Percent of Labor Force | 5.7 | 6.3 | .6 | 10 | 10.3 | 8.7 | -1.6 | -15 |
| Employment | 3,290 | 3,540 | 250 | 7 | 9,500 | 11,910 | 2,410 | 25 |
| Agricultural | 810 | 860 | 50 | 6 | 1,340 | 1,340 | 0 | 0 |
| Nonagricultural | 2,480 | 2,680 | 200 | 8 | 8,160 | 10,570 | 2,410 | 29 |
| Self-employed, Unpaid, & Domestics | 380 | 370 | -10 | -2 | 1,550 | 1,590 | 40 | 2 |
| Wage & Salary Workers | 2,100 | 2,310 | 210 | 10 | 6,610 | 8,980 | 2,370 | 35 |
| Manufacturing | 460 | 420 | -40 | -8 | 2,320 | 2,590 | 270 | 11 |
| Lumber & Wood Products | 390 | 350 | -40 | -10 | 2,170 | 2,080 | -90 | -4 |
| Other Manufacturing | 70 | 70 | 0 | 0 | 150 | 510 | 360 | 240 |
| Non-Manufacturing | 1,640 | 1,890 | 250 | 15 | 4,290 | 6,390 | 2,100 | 48 |
| Contract Construction | 410 | 140 | -270 | -65 | 230 | 450 | 220 | 95 |
| Transp.-Comm.-Utilities | 70 | 90 | 20 | 28 | 370 | 490 | 120 | 32 |
| Wholesale & Retail Trade | 540 | 690 | 150 | 27 | 1,320 | 1,730 | 410 | 31 |
| Finance, Ins., & Real Estate | 70 | 90 | 20 | 28 | 230 | 490 | 260 | 113 |
| Service & Miscellaneous | 220 | 390 | 170 | 77 | 750 | 1,170 | 420 | 36 |
| Government | 330 | 490 | 160 | 48 | 1,390 | 2,060 | 670 | 48 |

Table 26 (Continued)

| Industry | Klamath County 1960 | Klamath County 1966 | Klamath County Change | Klamath County Percent Change | Lake County 1960 | Lake County 1966 | Lake County Change | Lake County Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 18,170 | 18,750 | 580 | 3 | 3,040 | 2,920 | - 120 | - 3 |
| Workers in Labor-Mgt. Disputes | 20 | 0 | 20 | -- | 0 | 0 | 0 | 0 |
| Unemployment | 1,240 | 1,020 | - 220 | -17 | 270 | 240 | - 30 | - 11 |
| Percent of Labor Force | 6.8 | 5.4 | - 1.4 | - 20 | 8.8 | 8.2 | - .6 | - 6 |
| Employment | 16,910 | 17,730 | 820 | 4 | 2,770 | 2,680 | - 90 | - 3 |
| Agricultural | 1,790 | 1,550 | - 240 | - 13 | 480 | 650 | 170 | 35 |
| Nonagricultural | 15,120 | 16,180 | 1,060 | 7 | 2,290 | 2,030 | - 260 | - 11 |
| Self-employed, Unpaid & Domestics | 2,480 | 2,320 | - 160 | - 6 | 430 | 290 | - 140 | - 32 |
| Wage & Salary Workers | 12,640 | 13,860 | 1,220 | 9 | 1,860 | 1,740 | - 120 | - 6 |
| Manufacturing | 3,810 | 3,490 | 320 | 8 | 590 | 460 | - 130 | - 22 |
| Food Products | 240 | 160 | - 80 | - 33 | | | | |
| Lumber & Wood Products | 130 | 3,110 | 2,980 | 2,292 | 530 | 440 | - 90 | - 16 |
| Other Manufacturing | 440 | 220 | - 220 | - 50 | 60 | 20 | - 40 | - 66 |
| Non-Manufacturing | 8,830 | 10,370 | 1,540 | 17 | 1,270 | 1,280 | 10 | 78 |
| Contract Construction | 420 | 470 | 50 | 11 | 50 | 60 | 10 | 20 |
| Transp.-Comm.-Utilities | 1,470 | 1,540 | 70 | 4 | 80 | 70 | —10 | - 12 |
| Wholesale & Retail Trade | 2,730 | 3,090 | 360 | 13 | 310 | 320 | 10 | 3 |
| Finance, Ins. & Real Estate | 310 | 580 | 270 | 87 | 50 | 90 | 40 | 80 |
| Service & Miscellaneous | 1,610 | 1,940 | 330 | 20 | 210 | 170 | - 40 | - 19 |
| Government | 2,290 | 2,750 | 460 | 20 | 570 | 570 | 0 | 0 |

Table 26 (Continued)

| Industry | Lane County (Eugene Labor Market Area) 1960 | 1966 | Change | Percent Change | Lincoln County 1960 | 1966 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Market | 62,670 | 81,100 | 18,330 | 29 | 8,100 | 8,550 | 450 | 5 |
| Workers in Labor-Mgt. Disputes | 10 | 50 | 40 | 10 | 0 | 0 | 0 | 0 |
| Unemployment | 3,100 | 4,400 | 1,300 | 41 | 560 | 560 | 0 | 0 |
| Percent of Labor Force | 4.9 | 5.4 | .5 | 10 | 6.9 | 6.5 | - .4 | - 5 |
| Employment | 59,560 | 76,650 | 17,090 | 28 | 7,540 | 7,990 | 450 | 5 |
| Agricultural | 3,760 | 4,200 | 440 | 11 | 540 | 260 | - 280 | - 51 |
| Nonagricultural | 55,800 | 72,450 | 16,650 | 29 | 7,000 | 7,730 | 730 | 10 |
| Self-employed, Unpaid & Domestics | 10,370 | 10,150 | - 220 | - 2 | 1,300 | 1,110 | -190 | - 14 |
| Wage & Salary Workers | 45,430 | 62,300 | 16,870 | 37 | 5,700 | 6,620 | 920 | 16 |
| Manufacturing | 16,290 | 19,250 | 2,960 | 18 | 2,480 | 2,100 | - 350 | - 15 |
| Durable Goods, total | 14,210 | 16,450 | 2,240 | 15 | | | | |
| Lumber & Wood Products | 13,520 | 15,000 | 1,480 | 10 | 2,010 | 1,280 | - 730 | - 36 |
| Logging & Sawmills | 7,700 | 6,800 | - 900 | - 10 | | | | |
| Plywood & other Wood Products | 5,820 | 8,200 | 2,380 | 40 | | | | |
| Other Durable Goods | 690 | 1,450 | 760 | 110 | 470 | 820 | 350 | 74 |
| Non-durable Goods, total | 2,080 | 2,800 | 720 | 34 | | | | |
| Non-Manufacturing | 29,140 | 43,050 | 13,910 | 47 | | | | |
| Contract Construction | 3,010 | 3,400 | 390 | 12 | 140 | 330 | 190 | 135 |
| Trans.-Comm.-Utilities | 3,180 | 3,900 | 720 | 22 | 310 | 410 | 100 | 32 |
| Wholesale & Retail Trade | 8,670 | 12,400 | 3,730 | 43 | 960 | 1,310 | 350 | 36 |
| Finance, Ins., & Real Estate | 1,550 | 2,400 | 850 | 54 | 180 | 260 | 80 | 44 |
| Service & Miscellaneous | 5,080 | 7,900 | 2,820 | 55 | 780 | 1,010 | 230 | 29 |
| Government | 7,650 | 13,050 | 5,400 | 70 | 850 | 1,200 | 350 | 41 |

Table 26 (Continued)

| Industry | Linn County 1960 | Linn County 1966 | Linn County Change | Linn County Percent Change | Malheur County 1962 | Malheur County 1966 | Malheur County Change | Malheur County Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 20,990 | 26,100 | 5,110 | 24 | 18,230 | 18,460 | 230 | 1 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unemployment | 1,280 | 1,470 | 190 | 14 | 1,180 | 800 | -380 | -32 |
| Percent of Labor Force | 6.1 | 5.6 | -.5 | -8 | 6.5 | 4.3 | -2.2 | -33 |
| Employment | 19,710 | 24,630 | 4,920 | 24 | 17,050 | 17,660 | 610 | 3 |
| Agricultural | 2,830 | 2,800 | -30 | -1 | 6,990 | 6,520 | -470 | -6 |
| Nonagricultural | 16,880 | 21,830 | 4,950 | 29 | 10,060 | 11,140 | 1,080 | 10 |
| Self-employed, Unpaid & Domestics | 2,700 | 3,060 | 360 | 13 | 1,880 | 1,930 | 50 | 2 |
| Wage & Salary Workers | 14,180 | 18,770 | 4,590 | 32 | 8,180 | 9,210 | 1,030 | 12 |
| Manufacturing | 6,720 | 7,770 | 1,050 | 15 | 1,960 | 2,240 | 280 | 14 |
| Food Products | 400 | 610 | 210 | 52 | 1,700 | 2,030 | 330 | 19 |
| Lumber & Wood Products | 4,860 | 5,410 | 550 | 11 | 130 | 60 | -70 | -53 |
| Paper | 320 | 310 | -10 | -3 |  |  |  |  |
| Primary Metals | 720 | 950 | 230 | 31 |  |  |  |  |
| Other Manufacturing | 420 | 490 | 70 | 16 | 130 | 150 | 20 | 15 |
| Non-Manufacturing | 7,460 | 11,000 | 3,540 | 47 | 6,220 | 6,970 | 750 | 12 |
| Contract Construction | 470 | 1,650 | 1,180 | 251 | 340 | 370 | 30 | 8 |
| Transp.-Comm.-Utilities | 910 | 1,090 | 180 | 19 | 660 | 680 | 20 | 3 |
| Wholesale & Retail Trade | 2,460 | 3,160 | 700 | 28 | 2,080 | 2,290 | 210 | 10 |
| Finance, Ins., & Real Estate | 290 | 640 | 350 | 120 | 240 | 330 | 90 | 37 |
| Service & Miscellaneous | 1,120 | 1,750 | 630 | 56 | 1,330 | 1,470 | 140 | 10 |
| Government | 2,210 | 2,710 | 500 | 22 | 1,570 | 1,830 | 260 | 16 |

Table 26 (Continued)

| Industry | Marion-Polk County 1960 | 1966 | Change | Percent Change | Morrow County 1960 | 1966 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 56,650 | 66,900 | 10,250 | 18 | 1,570 | 1,730 | 160 | 10 |
| Workers in Labor-Mgt. Disputes | 40 | 0 | - 40 | -- | 0 | 0 | 0 | 0 |
| Unemployment | 3,450 | 3,700 | 250 | 7 | 120 | 80 | -40 | - 33 |
| Percent of Labor Force | 6.1 | 5.5 | - .6 | - 9 | 7.6 | 4.6 | -3.0 | - 39 |
| Employment | 53,160 | 63,200 | 10,040 | 18 | 1,450 | 1,650 | 200 | 13 |
| Agricultural | 8,910 | 7,700 | - 1,210 | -13 | 710 | 640 | - 70 | - 9 |
| Nonagricultural | 44,250 | 55,500 | 11,250 | 25 | 740 | 1,010 | 270 | 36 |
| Self-employed, Unpaid & Domestics | 7,080 | 7,800 | 720 | 10 | 120 | 150 | 30 | 25 |
| Wage & Salary Workers | 37,170 | 47,700 | 10,530 | 28 | 620 | 860 | 240 | 38 |
| Manufacturing | 8,640 | 10,100 | 1,460 | 16 | 70 | 130 | 60 | 85 |
| Durable Goods, total | 3,930 | | | | | | | |
| Lumber & Wood Products | 2,870 | 2,900 | 30 | 1 | | | | |
| Other Durables | 1,060 | 1,400 | 340 | 32 | | | | |
| Non-Durable Goods, total | 4,710 | | | | | | | |
| Food Products | 3,230 | 4,000 | 770 | 23 | | | | |
| Other Non-Durables | 1,480 | 1,800 | 320 | 21 | | | | |
| Non-Manufacturing | 28,530 | 37,600 | 9,070 | 31 | 550 | 730 | 180 | 32 |
| Contract Construction | 1,830 | 2,600 | 770 | 42 | 20 | 80 | 60 | 3 |
| Trans.-Comm.-Utilities | 1,580 | 1,800 | 220 | 13 | 40 | 50 | 10 | 25 |
| Wholesale & Retail Trade | 6,990 | 9,300 | 2,310 | 33 | 170 | 170 | 0 | 0 |
| Finance, Insurance & Real Estate | 1,990 | 2,700 | 710 | 35 | 30 | 50 | 20 | 66 |
| Service & Miscellaneous | 3,880 | 6,100 | 2,220 | 57 | 70 | 60 | - 10 | - 14 |
| Government | 12,260 | 15,100 | 2,840 | 23 | 220 | 320 | 100 | 45 |

Table 26 (Continued)

| Industry | Multnomah County* (in thousands) 1960 | 1966 | Change | Percent Change | Tillamook County 1960 | 1966 | Change | Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 344.7 | 409.3 | 64.6 | 18 | 6,740 | 5,920 | - 820 | - 12 |
| Workers in Labor-Mgt. Disputes | .7 | .6 | -.1 | -- | 0 | 0 | 0 | 0 |
| Unemployment | 16.7 | 13.7 | - 3.0 | -1 | 300 | 290 | -10 | - 3 |
| Percent of Labor Force | 4.8 | 3.3 | -1.5 | -31 | 4.5 | 4.9 | .4 | 8 |
| Employment | 327.3 | 395.0 | 67.7 | 20 | 6,440 | 5,630 | -810 | -12 |
| Agricultural | 17.0 | 13.0 | - 4.0 | - 2 | 1,190 | 810 | 380 | 31 |
| Nonagricultural | 310.3 | 382.0 | 71.7 | 23 | 5,250 | 4,820 | - 430 | - 8 |
| Self-employed, Unpaid & Domestics | 44.2 | 47.1 | 2.9 | 6 | 840 | 680 | -160 | - 19 |
| Wage & Salary Workers | 266.1 | 334.9 | 68.8 | 25 | 4,410 | 4,140 | -270 | - 6 |
| Manufacturing, total | 64.4 | 82.2 | 17.8 | 27 | 2,180 | 1,700 | -480 | - 22 |
| Durable goods, total | 35.4 | 52.7 | 17.3 | 48 | | | | |
| Lumber & Wood Products | 8.6 | 9.7 | 1.1 | 12 | 1,810 | 1,390 | - 320 | - 17 |
| Non-Durable Goods, total | 29.0 | 29.5 | .5 | 1 | | | | |
| Food & Kindred Products | 10.1 | 9.5 | -.6 | - 5 | 320 | 280 | -40 | - 12 |
| Other Manufacturing | | | | | 50 | 30 | - 20 | -40 |
| Non-Manufacturing, total | 201.7 | 252.7 | 51.0 | 25 | 2,230 | 2,440 | 210 | 9 |
| Contract Construction | 14.8 | 15.7 | .9 | 6 | 70 | 80 | 10 | 14 |
| Trans.-Comm.-Utilities | 27.5 | 29.1 | 1.6 | 5 | 290 | 180 | -110 | -37 |
| Wholesale & Retail Trade | 66.8 | 83.0 | 16.2 | 24 | 610 | 680 | 70 | 11 |
| Finance, Insurance & Realty | 14.9 | 20.2 | 5.3 | 35 | 100 | 130 | 30 | 30 |
| Service & Miscellaneous | 37.8 | 51.7 | 13.9 | 36 | 360 | 480 | 120 | 33 |
| Government | 39.9 | 53.0 | 13.1 | 32 | 800 | 890 | 90 | 11 |

*Portland Labor Area includes Multnomah, Clackamas, Washington Counties in Oregon and Clark County, Washington

Table 26 (Continued)

| Industry | Umatilla County 1960 | Umatilla County 1966 | Umatilla County Change | Umatilla County Percent Change | Union County 1962 | Union County 1966 | Union County Change | Union County Percent Change |
|---|---|---|---|---|---|---|---|---|
| Civilian Labor Force | 16,530 | 17,490 | 960 | 5 | 6,260 | 6,800 | 540 | 8 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unemployment | 940 | 720 | - 220 | - 23 | 390 | 330 | - 60 | - 15 |
| Percent of Labor Force | 5.7 | 4.1 | - 1.6 | - 28 | 6.2 | 4.9 | - 1.3 | - 20 |
| Employment | 15,590 | 16,770 | 1,180 | 7 | 5,870 | 6,470 | 600 | 10 |
| Agricultural | 2,860 | 2,670 | - 190 | - 6 | 980 | 820 | - 160 | - 17 |
| Nonagricultural | 12,730 | 14,100 | 1,370 | 9 | 4,890 | 5,650 | 760 | 15 |
| Self-employed, Unpaid & Domestics | 2,040 | 2,000 | - 40 | - 1 | 770 | 800 | 30 | 3 |
| Wage & Salary Workers | 10,690 | 12,100 | 1,410 | 13 | 4,120 | 4,850 | 730 | 17 |
| Manufacturing | 2,790 | 2,680 | - 110 | - 3 | 870 | 1,080 | 210 | 24 |
| Food Products & other Mfg. | 960 | 820 | - 140 | - 14 | 90 | 50 | - 40 | - 44 |
| Lumber & Wood Products | 960 | 500 | - 460 | - 47 | 740 | 980 | 240 | 32 |
| Other Manufacturing | 870 | 1,360 | 490 | 56 | 40 | 50 | 10 | 25 |
| Non-Manufacturing | 7,900 | 9,420 | 1,520 | 19 | 3,250 | 3,770 | 1,620 | 49 |
| Contract Construction | 460 | 360 | - 100 | - 21 | 120 | 120 | 0 | 0 |
| Trans.-Comm.-Utilities | 1,060 | 1,030 | - 30 | - 2 | 620 | 630 | 10 | 1 |
| Wholesale & Retail Trade | 2,140 | 2,710 | 570 | 26 | 800 | 1,010 | 210 | 26 |
| Finance, Ins., & Real Estate | 320 | 430 | 110 | 34 | 100 | 130 | 30 | 30 |
| Service & Miscellaneous | 1,120 | 1,360 | 240 | 21 | 510 | 640 | 130 | 25 |
| Government | 2,800 | 3,530 | 730 | 26 | 1,100 | 1,240 | 140 | 12 |

Table 26 (Continued)

| Industry | Wallowa County |  |  |  | Wasco-Sherman County |  |  |  |
|---|---|---|---|---|---|---|---|---|
|  | 1960 | 1966 | Change | Percent Change | 1960 | 1966 | Change | Percent Change |
| Civilian Labor Force | 2,970 | 2,400 | −570 | −19 | 8,440 | 10,330 | 1,890 | 22 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 20 | 0 | 20 | -- |
| Unemployment | 180 | 100 | − 80 | − 44 | 630 | 650 | 20 | 3 |
| Percent of Labor Force | 6.1 | 4.2 | 1.9 | 5 | 7.4 | 6.3 | − 1.1 | − 14 |
| Employment | 2,790 | 2,300 | − 490 | −17 | 7,790 | 9,680 | 1,890 | 24 |
| Agricultural | 760 | 790 | 30 | 3 | 1,360 | 1,530 | 170 | 12 |
| Nonagricultural | 2,030 | 1,510 | − 520 | − 25 | 6,430 | 8,150 | 1,720 | 26 |
| Self-employed, Unpaid & Domestic | 320 | 220 | −100 | − 31 | 1,200 | 1,170 | − 30 | − 2 |
| Wage and Salary Workers | 1,710 | 1,290 | −420 | − 24 | 5,230 | 6,980 | 1,750 | 33 |
| Manufacturing | 570 | 290 | −280 | − 49 | 1,130 | 1,120 | − 10 | −.8 |
| Lumber & Wood Products | 560 | 280 | − 280 | − 50 | 410 | 360 | 50 | 12 |
| Other Manufacturing | 10 | 10 | 0 | 0 | 720 | 760 | 40 | 5 |
| Non-Manufacturing | 1,140 | 1,000 | −140 | −12 | 4,100 | 5,860 | 1,760 | 42 |
| Contract Construction | 50 | 60 | 10 | 20 | 300 | 1,250 | 950 | 316 |
| Transp.-Comm.-Utilities | 40 | 60 | 20 | 50 | 640 | 520 | −120 | − 18 |
| Wholesale & Retail Trade | 270 | 230 | − 40 | − 14 | 1,290 | 1,480 | 190 | 14 |
| Finance, Insurance, & Real Estate | 70 | 60 | − 10 | − 14 | 160 | 210 | 50 | 31 |
| Service & Miscellaneous | 150 | 200 | 50 | 33 | 670 | 790 | 120 | 17 |
| Government | 560 | 390 | − 170 | − 30 | 1,040 | 1,610 | 570 | 54 |

Table 26 (Continued)

| Industry | Wheeler County |  |  |  | Yamhill County |  |  |  |
|---|---|---|---|---|---|---|---|---|
|  | 1962 | 1966 | Change | Percent Change | 1960 | 1966 | Change | Percent Change |
| Civilian Labor Force | 980 | 860 | - 120 | - 12 | 11,620 | 11,630 | 10 | .8 |
| Workers in Labor-Mgt. Disputes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unemployment | 80 | 50 | - 30 | - 37 | 960 | 800 | - 160 | - 16 |
| Percent of Labor Force | 8.2 | 5.8 | - 2.4 | - 29 | 8.3 | 6.9 | -1.4 | - 16 |
| Employment | 900 | 810 | - 90 | - 10 | 10,660 | 10,830 | 170 | 1 |
| Agricultural | 230 | 230 | 0 | 0 | 2,980 | 1,970 | - 1,010 | - 33 |
| Nonagricultural | 670 | 580 | - 90 | - 13 | 7,680 | 8,860 | 1,180 | 15 |
| Self-employed, Unpaid & Domestics | 100 | 80 | - 20 | -20 | 1,420 | 1,260 | -160 | -11 |
| Wage & Salary Workers | 570 | 500 | - 70 | - 12 | 6,260 | 7,600 | 1,340 | 21 |
| Manufacturing | 360 | 270 | - 90 | - 25 | 2,120 | 2,170 | 50 | 2 |
| Food Products |  |  |  |  | 490 | 500 | 10 | 2 |
| Lumber & Wood Products | 360 | 270 | - 90 | - 25 | 1,040 | 820 | -220 | - 21 |
| Other Manufacturing | 0 | 0 | 0 | 0 | 590 | 850 | 260 | 4 |
| Non-Manufacturing | 210 | 230 | 20 | 9 | 4,140 | 5,430 | 1,290 | 31 |
| Contract Construction | 0 | 10 | 10 | -- | 220 | 270 | 50 | 22 |
| Transp.-Comm.-Utilities | 10 | 10 | 0 | 0 | 300 | 280 | - 20 | - 6 |
| Wholesale & Retail Trade | 30 | 40 | 10 | 33 | 1,200 | 1,680 | 480 | 40 |
| Finance, Ins., & Real Estate | 20 | 20 | 0 | 0 | 370 | 460 | 90 | 24 |
| Service & Miscellaneous | 10 | 10 | 0 | 0 | 1,020 | 1,370 | 350 | 34 |
| Government | 140 | 140 | 0 | 0 | 1,030 | 1,370 | 340 | 33 |

Source: Data for compilation of Table furnished by Oregon State Department of Employment

# SECTION VI

# APPRENTICESHIP AND PRIVATE SCHOOL DATA

In including the limited, and in some cases tentative, information contained in this section, the Task Force is quite aware that the data in no way provide an adequate statistical coverage of the role of apprenticeship programs or private school operations in Oregon. The data have been included because they provide at least some useful information concerning these important occupational education resources.

In terms of the original charge to the Task Force, these sectors were not included. However, as described in Section I of this report, the Task Force did broaden considerably the areas of its concern. As a result of this, limited interaction with representatives of apprenticeship programs and private schools was achieved. These representatives were most cooperative with and sympathetic to the objectives of the Task Force. However, for a number of valid reasons, the comprehensive data desirable for inclusion in the pages of this report were not readily available. The manifest willingness of these organizations to cooperate in a project of this kind makes it clear that the desired data could be generated; however, neither the time nor the personnel needed for such a project was available to this Task Force.

The information presented in Table 31, which reflects the annual capacities of Oregon private vocational schools, is subject to a number of qualifications that should be taken into account by anyone who examines this report. These limitations are:

(1) There was not sufficient time for those involved to contact all the private schools licensed by the State of Oregon. Those that were not contacted are not included in the compilation shown in Table 31. Table 32, which includes all the private vocational schools licensed by the State of Oregon, indicates the coverage that was attained.

(2) Schools of beauty are licensed by the State Board of Cosmetic Therapy Examiners; and when contacted, the Board was able to provide a statewide capacity, but not one broken out by area.

(3) Aviation flight schools are not included in the compilation in Table 31. These schools are licensed by the State Board of Aeronautics; and, when contacted, the Director of the Board indicated that the capacity of these schools is virtually infinite.

(4) It is probable that there is a significant discrepancy in the business area because the schools involved differ considerably in their classification of jobs. For example, it is quite likely that there is some overlapping between the clerical and secretarial classifications that were reported.

Table 27

REGISTERED APPRENTICES IN SELECTED OCCUPATIONS
UNITED STATES, 1963 AND OREGON, 1967

| | United States 1963* | Oregon 1967** |
|---|---|---|
| Construction trades: | (103046) | (1743) |
| Brick, stone, and tile masons | 8607 | 63 |
| Carpenters | 22073 | 390 |
| Cement masons | 1478 | 14 |
| Electricians | 19532 | 388 |
| Glaziers | 1023 | 20 |
| Lathers | 1718 | 9 |
| Painters | 5597 | 79 |
| Plasterers | 1407 | 10 |
| Plumbers, pipefitters | 20457 | 300 |
| Roofers | 2259 | 5 |
| Sheetmetal workers | 9899 | 238 |
| Structural iron workers | 4895 | 94 |
| Others | 4101 | 133 |
| Metalworking trades: | (23538) | (325) |
| Automotive mechanics | 3366 | 100 |
| Auto body builder repairmen | 1022 | 13 |
| Boilermakers | 628 | 28 |
| Engravers | 45 | -- |
| Machinists | 8102 | 106 |
| Melders and coremakers | 566 | 36 |
| Patternmakers | 699 | 18 |
| Toolmakers, diemakers | 7456 | -- |
| Others | 1654 | 24 |
| Printing trades: | (12768) | (67) |
| Bookbinders | 1041 | 8 |
| Compositors | 4987 | 22 |
| Electrotypers, stereotypers | 905 | -- |
| Lithographers | 1592 | 9 |
| Mailers | 220 | 1 |
| Photoengravers | 718 | 1 |
| Pressmen | 3135 | 17 |
| Others | 170 | 9 |
| Miscellaneous trades N.E.C. | 19535 | 341 |
| Total | 158837 | 2476 |

Source: * Manpower Report of the President, 1965
** Oregon Apprentice Data, 1968, Oregon Board of Education

## Table 28

## APPRENTICE TRAINING IN OREGON, 1967-1968

| | |
|---|---|
| Number of areas reporting registered apprentices | 25 |
| Number of areas offering classes for apprentices | 20 |
| Total number of registered apprentices | 2476 |
| Total number of apprentices receiving related instruction | 2203 |
| Enrollment reported by community colleges | 2048 |
| Enrollment reported by high school or educational districts | 155 |
| Percentage of total enrollment in community college classes | 93% |
| Enrollment in classes as compared with number of registered apprentices | 89% |

### NUMBERS OF REGISTERED APPRENTICES IN OREGON, BY AREAS
### 1967-1968

| Apprenticeship area | Number of registered apprentices |
|---|---|
| Portland | 1463 |
| Clackamas County | 252 |
| Eugene | 199 |
| Salem | 112 |
| Medford | 72 |
| Albany | 63 |
| Coos Bay | 55 |
| Astoria | 46 |
| Central Oregon | 38 |
| Lincoln County | 29 |
| Roseburg | 29 |
| Pendleton | 23 |
| Klamath Falls | 20 |

Less than 20 apprentices: Baker, Burns, Columbia County, Enterprise, Grants Pass, John Day, LaGrande, Ontario, The Dalles, Tillamook, Washington County, Yamhill areas.

Source: Oregon Board of Education - Oregon Apprentice Data, 1968

Table 29

REGISTERED APPRENTICES IN OREGON AND ENROLLMENT IN RELATED CLASSES, 1967-68

| Occupational field | Registered apprentices | Number enrolled in related classes |
|---|---|---|
| Construction: | | |
| Bricklayers | 27 | 22 |
| Bridge and iron workers | 81 | 78 |
| Carpenters | 390 | 341 |
| Drywall finishers | 31 | 24 |
| Glaziers | 20 | 16 |
| Inside wiremen | 364 | 375 |
| Lathers | 9 | 1 |
| Line construction workers | 57 | 64 |
| Outside wiremen | 24 | 21 |
| Painters | 79 | 67 |
| Plumbers | 223 | 214 |
| Roofers | 5 | 3 |
| Sheetmetal workers | 238 | 220 |
| Shipwrights | 1 | 2 |
| Steamfitters | 77 | 56 |
| Tile setters | 5 | 2 |
| Trowel trades workers | 11 | 11 |
| Iron workers | 13 | 13 |
| Plasterers | 10 | 0 |
| Cement masons | 3 | 0 |
| Sign hangers | 12 | 7 |
| Linoleum/carpet layers | 63 | 57 |
| | 1743 | 1594 |
| Graphic Arts: | | |
| Bookbinders | 8 | 8 |
| Commercial photographers | 3 | 3 |
| Compositors | 22 | 22 |
| Lithographers | 9 | 2 |
| Photoengravers | 1 | 1 |
| Pressmen | 17 | 17 |
| Printers | 3 | 0 |
| Sign painters | 3 | 6 |
| | 66 | 59 |
| Maintenance Mechanics: | | |
| Appliance repairmen | 24 | 24 |
| Auto body & fender repairmen | 13 | 4 |
| Auto mechanics | 79 | 67 |
| Heavy duty equipment mechanics | 21 | 0 |
| Industrial maintenance electricians | 142 | 141 |
| Meter men/station wiremen | 10 | 10 |
| Millwrights | 3 | 3 |
| Power linemen | 42 | 33 |
| Radio/TV repairmen | 7 | 7 |
| Railroad electricians | 9 | 9 |

Table 29 (Continued)

| Occupational field | Registered apprentices | | Number enrolled in related classes | |
|---|---|---|---|---|
| Maintenance Mechanics: (continued) | | | | |
| U.P.R.R. carmen | 12 | | 12 | |
| U.P.R.R. machinists | 10 | | 10 | |
| Watchmakers | 10 | | 0 | |
| Office machine repairmen | 1 | | 0 | |
| Composing room mechanics | 2 | | 2 | |
| | | 385 | | 322 |
| Production and Miscellaneous Crafts: | | | | |
| Bakers | 15 | | 12 | |
| Boilermakers | 28 | | 21 | |
| Electric motor winders | 5 | | 3 | |
| Electronics technicians | 17 | | 17 | |
| Machinists | 106 | | 104 | |
| Mailers | 1 | | 1 | |
| Meatcutters | 7 | | 3 | |
| Mill/cabinet workers | 25 | | 22 | |
| Molders/coremakers | 36 | | 25 | |
| Operating engineers | 20 | | 19 | |
| Optical technicians | 1 | | 0 | |
| Orthopedic technicians | 1 | | 0 | |
| Patternmakers | 18 | | 1 | |
| Upholsterers | 2 | | 0 | |
| | | 282 | | 228 |
| Total | 2476 | | 2203 | |

Source: Oregon Board of Education

Table 30

ENROLLMENTS IN LICENSED PRIVATE
VOCATIONAL SCHOOLS, 1966-67

| Type of School | Number of Schools | Location of School |  | Student Enrollment 7/1/66 | Student Enrollment Between 7/1/66 to 6/30/67 | Student Completing Course 7/1/66 to 6/30/67 | Student Enrollment 6/30/67 |
|---|---|---|---|---|---|---|---|
|  |  | Ptld. | Up State |  |  |  |  |
| Art Design | 3 | 3 | - | 79 | 233 | 115 | 95 |
| Business Schools | 18 | 9 | 9 | 1,510 | 3,900 | 2,511 | 1,476 |
| Driver Training | 14 | 9 | 5 | 253 | 3,039 | 2,069 | 236 |
| Home Study | 14 | 12 | 2 | *(12,139) | *(14,095) | *(6,349) | *(22,795) |
| Medical-Dental-Massage | 3 | 2 | 1 | 104 | 209 | 167 | 99 |
| Real Estate | 7 | 5 | 2 | 151 | 1,202 | 1,107 | 136 |
| Sales & Merchandising | 4 | 4 | - | 55 | 237 | 172 | 71 |
| Self Improvement | 11 | 10 | 1 | 889 | 3,143 | 2,864 | 1,032 |
| Trade & Technical | 13 | 10 | 3 | 719 | 4,361 | 3,701 | 796 |
| Other | 2 | - | 2 | 2 | 2,510 | 2,500 | 6 |
| TOTAL | ***89 | 64 | 25 | **3,762 | **18,834 | **15,206 | **3,947 |

* Home Study enrollment figures not included in totals.
** Figures represent resident students.
*** Total includes duplications.

Source: Oregon Board of Education
Administrative Field Services Division
School Standards

Table 31

ESTIMATED ANNUAL CAPACITIES
OF PRIVATE VOCATIONAL SCHOOLS IN OREGON

| No. of Schools | Curriculum | Portland | Salem | Eugene | Medford | Beaverton | Klamath Falls | Roseburg | Baker |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Art | | | | | | | | |
| | Commercial Art | 100 | | | | | | | |
| 4 | Barbering | 80 | 35 | 20 | | | | | |
| | Beauty - 2000 Statewide | | | | | | | | |
| 20 | Business | | | | | | | | |
| | Bkkpg & Acctg | 267 | 12 | 110 | 45 | 130 | 30 | 15 | 20 |
| | Business Admin. | 128 | 25 | | 10 | | 5 | | |
| | Business Machines | 227 | 45 | | | 10 | | | |
| | Clerical | 672 | | 10 | | | | 15 | 10 |
| | Computer Programming | 300 | | 100 | | | | | |
| | Court Reporting | 45 | | | | | | | |
| | Data Processing Operation | 741 | | 70 | | | | | |
| | Office Management | 20 | | 5 | | | | | |
| | PBX Switchboard | 15 | | | | | | | |
| | Pro. Salesmanship | 1150 | | | | | | | |
| | Real Estate Sales | 1200 | | | | 192 | | | |
| | Secretarial Science | 1948 | 550 | 365 | 70 | 260 | 55 | 30 | |
| | Super Market Chkg | 360 | | | | | | | |
| 2 | Design | | | | | | | | |
| | Floral | 80 | | | | | | | |
| | Dress | 40 | | | | | | | |
| 2 | Health Services | | | | | | | | |
| | Dental Assistant | 60 | | | | | | | |
| | Dental Technician | 50 | | | | | | | |
| | Medical Secretary | 30 | | | | | | | |
| | Medical Technologist | 100 | | | | | | | |

Table 31 (Continued)

| No. of Schools | Curriculum | Portland | Salem | Hood River | Corvallis |
|---|---|---|---|---|---|
| 3 | Modeling & Fashion Careers | | | | |
| | Advanced Modeling | 80 | | | |
| | Finishing | 1090 | 480 | | |
| | Fashion Merchandising | 140 | | | |
| 1 | Self Improvement | | | | |
| | Reading | 4500 | 300 | | 200 |
| 28 | Trade & Industry | | | | |
| | Architectural Design | 160 | | | |
| | Arch. Engrg. Tech. | 160 | | | |
| | Auto-Body & Fender | 90 | | | |
| | Auto Mechanics | 1200 | | | |
| | Civil Engrg. Tech. | 160 | | | |
| | Diesel Mechanics | 900 | | | |
| | Diesel Operator | 600 | | | |
| | Industrial Drafting | 260 | | | |
| | Meat Cutting | | | | |
| | Mech. Engrg. Tech. | 80 | | | |
| | Machine Shop | 900 | | | |
| | Offset Printing | | 24 | | |
| | Radio-TV Announcing | 90 | | | |
| | Radio-TV Servicing | 900 | | 30 | |
| | Refrig. & Air Conditioning | 120 | | | |
| | Surveying | 100 | | | |
| | Tool & Dye Design | 40 | | | |
| | Transport Operator | 384 | | | |
| | Upholstering | 30 | | | |
| | Welding | 3180 | | 240 | |

Source: Oregon Board of Education
Administrative Field Services Division
School Standards

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Table 32

LIST OF PRIVATE VOCATIONAL SCHOOLS BY LOCALITY

| | |
|---|---|
| ALOHA: | Beaver Driver Training |
| BAKER: | Baker Business College* |
| BEAVERTON: | Beaverton Business College* |
| | Oregon Business College* |
| CORVALLIS: | Evelyn Wood Reading Dynamics* |
| | Harper's School of Floral Design |
| | Olson Auto Driving School |
| COTTAGE GROVE: | Rose Meat Cutting School |
| EAGLE CREEK: | Oregon School of Massage |
| EUGENE: | Continental Career College* |
| | Electronic Computer Programming Institute* |
| | Eugene Business College* |
| | Evelyn Wood Reading Dynamics* |
| | Merritt Davis School of Commerce* |
| | University School of Real Estate |
| | Walsh's Pet Grooming College |
| HARRISBURG: | Town and Country Driver's Clinic |
| HOOD RIVER: | Hood River Skilled Trade Schools* |
| KLAMATH FALLS: | Robertson School of Business* |
| | Suburban Driving School |
| MCMINNVILLE: | Automobile Sales Training School |
| MEDFORD: | Robertson School of Business* |
| | Southern Oregon Driver Training School |
| MILWAUKIE: | Mt. Hood Ski School |
| | Olson's Poodle Parlor * |
| PORTLAND: | Advertising Art School* |
| | Bassist School for Fashion Careers* |
| | Bonnie School of Charm |
| | Broadway Driving School |
| | Career Builders* |
| | Columbia Driving Academy |
| | Columbia School of Broadcasting |
| | Commercial Driver Training* |
| | Dean Vincent Real Estate School |
| | Defensive Driving |
| | Driver Education Center |
| | Electronic Computer Programming Institute* |
| | Evelyn Wood Reading Dynamics* |
| | Franklin Institute of Sales* |

Table 32 (Continued)

| | |
|---|---|
| PORTLAND: | Glorea LaVonne Finishing School* |
| | Hutchinson School of Floral Design* |
| | Industrial Welding School of Oregon* |
| | Interstate Training Service |
| | John Robert Powers School |
| | Leadership & Sales Training Associates* |
| | Leland S. Lewiss - School of Defensive Driving Techniques |
| | McKinzie Auto Body & Fender School* |
| | Michel Institute of Medical Technology* |
| | Napoleon Hill Academy |
| | North Pacific Dental & Medical College* |
| | Northwest Schools* |
| | Northwestern College of Business* |
| | Oregon Driving School |
| | Oregon Polytechnic Institute* |
| | Pacific Academy of Accountancy |
| | Pacific Business College* |
| | Patricia Lee School of Charm & Modeling |
| | Porter Martin Real Estate School* |
| | Portland Real Estate School* |
| | Portland Secretarial School* |
| | Portland Upholstering School* |
| | Reading & Study Skills Center |
| | Real Estate School of Oregon* |
| | Realty Training School* |
| | Receptionist School of Oregon |
| | Safeway Driver Training |
| | Sales Training of Portland, Inc.* |
| | Seley Business Machine School* |
| | Technical Training Service* |
| | Town and Country Driving School |
| | Travel Central* |
| | Victor N. Rigby Driver Training |
| | West Coast Training Service |
| | Western Business University* |
| | Oregon School of Insurance |
| ROSEBURG: | Robertson School of Business* |
| SALEM: | Cinderella School of Self-Improvement |
| | Evelyn Wood Reading Dynamics* |
| | Lebold's Driver Training |
| | Merritt Davis School of Commerce* |
| | Norman F. Webb - Real Estate Salesman & Broker's Course* |
| | Offset and Duplicating School* |
| | Salem Business College* |
| SPRINGFIELD: | Burgan's Driver Training |
| WOODBURN: | Pacific Coast Institute of Technology |

* Indicates Schools that were contacted

Source: Oregon Board of Education
Administrative Field Services Division
School Standards

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PROJECT

# OPC $\frac{\text{ARTIC}}{\text{COORD}}$ HS-CC

# REPORT OF TASK FORCE II

## HIGH SCHOOL-COMMUNITY COLLEGE
## CURRICULUM ARTICULATION

OREGON BOARD OF EDUCATION

Dale Parnell
Superintendent of Public Instruction

Public Service Building
Salem, Oregon 97310

1969

# FOREWORD

The present decade's increasing emphasis upon vocational education in Oregon's secondary schools and community colleges has produced notable expansion and improvement in the offerings provided those students preparing for their life's work. The ever increasing importance of preparing young people and adults for their occupational future has made it imperative that the State of Oregon maximize its offerings to reach the largest possible number of students with meaningful occupational preparation.

The Occupational Preparatory Curriculum Articulation-Coordination Project has had as its primary objective the development of a suggested comprehensive plan for promoting and guiding the development and expansion of occupational education in Oregon's high schools and community colleges. This report of Task Force II of that project, High School-Community College Curriculum Articulation, is an integral part in the development of the suggested plan. In the total project's efforts, this report follows and builds upon the report of Task Force I. It is hoped that the material in this document can prove useful to both local and state curriculum planners as they seek to maximize potential curriculum offerings and to assure continuity in the educative process.

Contributions to and the reporting of the findings of Task Force II has truly been a joint effort of the Oregon Board of Education, Oregon State System of Higher Education, Oregon Department of Employment, local school districts, and Oregon's community colleges.

DALE PARNELL
Superintendent of Public Instruction
Oregon Board of Education

# ACKNOWLEDGEMENTS

It is not possible to give adequate recognition to all the individuals who made contributions to this report. It has been a combined effort and of special interest to the Oregon State System of Higher Education, the Oregon Board of Education, the Oregon Department of Employment and of Oregon's local school districts and community colleges. Special mention is made of the efforts of State Superintendent of Public Instruction, Dale Parnell who, while serving as President of the Oregon Community College Association administrators' group, fostered the project, and of James W. Sherburne, Vice Chancellor for the Division of Continuing Education, whose assistance expedited the project's implementation.

Sincere appreciation is expressed to those listed on the following page who served as members of Task Force II, and to their employing institutions which made their services possible. Guidance for the project and development of the report involved many members of the Division of Community Colleges and Vocational Education, Oregon Board of Education, under the guidance of William G. Loomis, and their time is warmly acknowledged. We wish to especially acknowledge the contributions of Task Force II Staff Coordinator, Mrs. Patricia Lantz of Molalla Union High School, whose work throughout the project has materially improved its value. Also, special recognition is given to A. Michael Colbert, Division of Continuing Education, who did much to prepare the final manuscript of this report.

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# PREFACE

The work of this committee was in keeping with the positive approach that has sparked the imagination of persons concerned with occupational education. In examining the work of this committee, it would be well to point out that, while grappling with the real problems of how and where occupational education can best be offered, the group functioned as individuals, as subcommittee members, and as a committee of the whole. I would like to express my personal gratitude to the members for their labor and the cooperative attitude with which they approached this study.

It is our collective opinion that, even with the guidelines laid down here, it is imperative that a continuing dialogue be maintained between persons at all levels of the educational process. Opinions change, as do the persons that influence these opinions. If we can do no more than establish the idea that what is at stake is not the personal domain and influence of educators, but rather the careers of students, we will have accomplished our purpose.

Welcome Rumbaugh

Welcome Rumbaugh
Chairman
Task Force II

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# INTRODUCTION

The primary objective of the Articulation-Coordination Project is to produce suggested guidelines for promoting and guiding the development and expansion of occupational education in Oregon high schools and community colleges. Such guidelines must ultimately provide for:

1. Articulation of occupational preparatory curriculums from the senior high school to specialized vocational-technical preparation in the community college,
2. Coordination and distribution of occupational preparatory curriculums among community colleges, and
3. Operation of student services that promote effective development of human resources and efficient utilization of physical resources.

To achieve the major objective outlined, four special task force teams were designated and assigned to work on specified aspects of the total project. The teams were made up of representatives from high schools, community colleges, the Oregon Board of Education, Oregon State University and the State Employment Service. The task force groups are under the program direction of the Oregon Board of Education, Division of Community Colleges and Vocational Education. Their work is coordinated and assisted by contracted staff in the Division of Continuing Education.

This report is concerned with the assignment of Task Force II--articulation of occupational preparatory curriculums from the high school to specialized vocational-technical preparation in the community college. The members of Task Force II feel that the total process of articulating educational offerings should extend from kindergarten through university and continuing education. It should also include functional relationships with agriculture, business, industry, and government.[11] In the area of occupational education, a minimal procedure must be provided for articulating occupational preparatory curriculums from exploratory experience at the junior high school level, through preparation in occupational clusters at the high school, to specialized vocational-technical preparation in the community college.

Task Force II, because of time, limits itself to the articulation of occupational education in high schools and community colleges, as defined by the following specific tasks:

1. To collect, organize, and analyze data concerning
    a. Existing and proposed occupational programs in the high schools and community colleges of Oregon,
    b. Enrollment in occupational programs,
    c. Policies and procedures for advanced placement in the community colleges, and
    d. Policies and practices for cooperative programs between institutions.
2. To develop patterns that may be used as models for curriculum planning and to encourage planned and coordinated procedures which may facilitate articulation in occupational education between the high schools and the community colleges in Oregon.
3. To develop guidelines for advanced placement.
4. To prepare recommendations for the Oregon Board of Education, local K-12 school districts, and Oregon community colleges to use in implementing the guidelines suggested.

This report's place of order in the total study follows the assignment of Task Force I, which was to collect, analyze and put in a form usable for curriculum planning, data regarding the current and projected labor market needs. The report precedes the work of Task Forces III and IV, Curriculum Coordination and Open Enrollment Relations, respectively. The sections of Task Force II's report include:

1. The problems and needs for a systematic plan of curriculum articulation in Oregon's secondary and post-secondary facilities.

2. A presentation of data concerning educational programs in high schools and community colleges, including cluster concepts, various enrollment studies, institutional roles, counseling, placement relationships, use of advisory committees, cooperative work experience programs, preservice training or teacher preparation, and articulation with business, industry, and apprenticeship. Suggested patterns for articulation are included in agriculture education, business education, trade and industrial education, and occupational exploratory experience programs.

3. The recommendations offered by Task Force II.

## Definitions of Terms

Allocation: A method by which occupational education programs are assigned to educational institutions.

Articulation: The process of transfer and progression of students from one level of educational offering to the next. It may be regarded as the extent to which the various levels of the education system are so interrelated as to provide for continuous educational progress of students with a minimum of repetition and a maximum of efficiency.

Cluster Curriculum: This concept holds that occupations may be classified into logically related groups on the basis of authentic identical or similar elements or characteristics. The identical or similar elements that link occupations into clusters of occupations must be located among the numerous skills and knowledges necessary for workers to perform efficiently in the multitude of jobs found in our economy.

Credit by Evaluation: The placement of a community college student in a particular course above and beyond the normal beginning course in which credit will be granted. This process would provide credit toward a degree or certification based on the evaluation procedure or technique established.

FTE (Full Time Equivalency): A measure of a community college student enrollment referring to 680 clock hours in Vocational-Technical classes or 45 credit hours in Lower Division courses, per student, per year.

Occupational Education (Vocational Education): For the purposes of this report, these terms are used synonymously. That part of total education which deals specifically, and in an organized manner, with the acquisition of skills, understanding, attitudes, and abilities necessary for entry into post-secondary occupational education and training programs, and/or entry and successful progress in an occupation or occupational cluster.

Occupational Programs: Systematic education processes designed as one aspect of education which helps the individual discover, define, develop, and refine his competencies, attitudes, and habits, and to use them in working toward a career of his choice.

Paraprofessional (Semiprofessional): For the purposes of this report, these terms are used synonymously. Refers to those fields which are not generally considered to be professional and requiring a baccalaureate or higher degree, but are related to the professional areas.

Placement: An evaluation of the student so that he is placed at the proper entry level. This may involve credit by evaluation and course waiver without credit.

Vocational Program Area (Occupational Program Area): For the purposes of this report, these terms are used synonymously. A generic term used to identify an area of instruction including agriculture, business, trade and industrial, home economics, and health education programs.

## Procedure of Study

Members of this group, representing high schools, community colleges, Oregon Board of Education and Oregon State University, met in work sessions during July, August and September, 1968. The report framework originated in this group, with the staff consultant, Patricia Lantz. Three subcommittees, functioning between sessions, developed the major points of priority and guidelines which were established by the Task Force as a whole, under the leadership of the project director, Darrell L. Ward of the Division of Continuing Education.

This report is based on secondary data, much of which has been supplied by the staff of the Oregon Board of Education. Task Force II is indebted to the following for their individual contributions to various sections of this report: Mr. Hartley B. Campbell, Consultant, Vocational Guidance, Division of Continuing Education; Mr. Ted Gould, Consultant, Industrial Arts Education and Mr. George Warren, Consultant, Trade and Industrial Education, both from the Division of Community Colleges and Vocational Education, Oregon Board of Education; and Mr. Welcome Rumbaugh, Coordinator, Technical-Vocational Education, Lane County Intermediate Education District. Material contributed on articulation patterns was supervised by Mr. Monty E. Multanen, State Supervisor, Agriculture Education; Mr. William Oleson, State Supervisor, Trade and Industrial Education; and Mr. Ron Thurston, State Supervisor, Business Education, from the Division of Community Colleges and Vocational Education, Oregon Board of Education. Mr. A. Michael Colbert, Consultant, Vocational Education, Division of Continuing Education, has ably assisted with the rewriting and editing.

## II. THE PROBLEM AND NEED FOR ARTICULATION

### The Challenge of Articulation

One of the greatest challenges facing any educator in this nation today is to assist in providing total education for all the people of his community. Recognizing education as a continuum virtually means providing unlimited opportunities for learning from the kindergarten level until the individual dies.[6] It is not only desirable, but necessary that a planned systematic flow of curricula be developed.

Such a systematic plan would provide that:

1. Youth, desiring to continue their vocational education beyond high school, may do so with the assurance that little lost motion or duplication of course work will occur.
2. Youth who will possess job entry skills after completing secondary vocational courses and may enter into employment if they desire.
3. Youth who have completed high school vocational courses and wish to continue their educational experience may qualify and receive from the community college credit for vocational courses taken at the secondary level.
4. Youth who have not taken high school vocational courses can enter beginning level courses at the post-high school institution.
5. Individuals who are employed may return for educational opportunities offered in evening programs of a short term or specific need.

Systematic articulation and coordination of occupational preparatory curriculums from the high school through community college level can only come about as a result of continuous planning and replanning. There must be a dialogue between instructors, supervisors and administrators at all levels and representing all types of educational institutions and programs.

The realization of the entire educational community that articulation must absolutely take place for the good of the student and potential students of the state must be expeditiously brought about.

Problems and Needs in Articulation

There are many problems and needs in effecting meaningful articulation. These elements were identified by Task Force II as the most pressing:

- Need for articulation when there is planned duplication of programs and facilities.
- Need to articulate the diverse high school occupational offerings with the community college curricula.
- Need for planned and continued communication between those involved with occupational education at the high school and community college levels.
- Need to include work experience and individual instruction as a part of the high school and community college programs.
- Need for reorientation of the guidance functions to better serve occupational education.
- Need for new approaches in instructor and leadership preparation to be recognized by the degree-granting institutions with further exploration of the role of continuing education to implement such programs.
- Need to develop a method for logical, systematic, long-range program planning.

These priority elements are not necessarily in order of their importance, nor are these the only needs effecting curriculum articulation, but they are of sufficient magnitude to be discussed individually.

Planned Duplication: There is a need for articulation when there is planned duplication of programs and facilities. Students leave the educational process at various levels with varying degrees of proficiency. Opportunity for smooth and profitable education should be available to all students who are interested. Most high school occupational courses will need to be offered in some form at the community college for those who did not schedule them previously. However, some specialized courses should be offered only in the community college. Planned duplication of facilities and equipment can provide new experiences on the community college level.

Duplication is essential and schools should be able to meet the student interests and requirements wherever and whatever they are. One of the significant ways to solving these problems is meaningful articulation.

Diverse Occupational Offerings: There is a vital need to articulate the wide variety of occupational offerings in the high schools with the community college curricula for the students coming from diverse secondary programs in the state.

Students who have had the benefit of an extensive occupational education program at the secondary level need assistance in being placed at the proper beginning level in the community college so that course or skill repetition does not cause students disinterest. It is urgent that community colleges develop policies and procedures on advanced placement by course waiver or credit by evaluation in their vocational-technical programs. These policies and procedures should be well defined and communicated to high school students, counselors and occupational program administrators so that students may be aware that repetition of course content is not necessarily required. Students, especially those from area skill centers or well-developed comprehensive high school programs, will increasingly benefit from such action by the community colleges.

Proper placement will permit the student to reach his goal sooner, or it may permit him a greater selection of elective course work;

likewise, students who did not have the opportunity to take beginning level vocational classes in high school need to have the chance.

Therefore, planned duplication of course offerings is essential and can be expedited through cooperative articulation in program development.

Communication Between OccEd Levels: There is a need for planned and continued communication between those involved with occupational education at the high school and community college levels. To be effective, this must involve administrators, teachers, curriculum planners, advisory committees, counselors, students and representatives from business and industry.

Work Experience and Individual Instruction: Further recognized as vital needs are work experience and individual instruction in both high school and community college programs. These are often recognized as desirable, but Task Force II emphasizes them as necessary.

Guidance Functions: There is a need for reorientation of the guidance functions to better serve occupational education. Major areas that need attention are:

- Comprehensive occupational guidance for both youth and adults with emphasis on placement of graduates in occupational education programs.
- Guidance counselors should have access to, and maintain and communicate to students, current information concerning regional and local employment opportunities. (Task Force I Report)
- Guidance service for students who may be classified as those with special needs.
- Follow-up of former students to determine relationship of curricular objectives and employment experience.
- Communication between high school and community college guidance personnel.

- Developing counselors' awareness of the effect their guidance has on the students' attitudes toward occupational education.

Instructor and Leadership Preparation: The need of new approaches for preparing instructors and other vocational education personnel must be recognized by degree-granting institutions.

University and college faculty have been deeply involved in the development of new secondary school curriculums through summer institutes, seminars and workshops. Yet, though they help bring about change at the lower level, college personnel show a surprising inability to accept the implications of that change for themselves. Too few feel that their colleges have a continuing responsibility to prepare teachers who can assure the success of the programs they have helped develop. Though they are willing to work with elementary and secondary educators from time to time in projects, most faculty members are not eager to prolong the relationship. They are not especially interested in discussing such "education" matters as "student needs," "psychological maturity," or the transition process known as "articulation." Robert Byrnes has commented, "Those of us who talk about a community of teachers and scholars ought to recognize that there isn't any such community and that there will not be one until the college and high school teachers recognize that they are working on the same human material. Nothing magical, alas, occurs between June and September when he goes to college. He is basically the same person; the people working on him ought to be working together. They are not now."[13]

The role of continuing education must be explored, and implementation of more programs such as Oregon's Vocational Education Leadership Development Program must be completed. Legislation is ready to help educators with the preceding defined needs, but they cannot be expected to create feasible programs. It is the responsibility of local groups, with the aid of the expertise of consulting agencies, to initiate planned programs. Although much has been done to analyze particular aspects of educational activities and individual resources, no concerted effort has been made to deal with all types of activities and all kinds of resources simultaneously.

Program Planning: There is a need to develop a method for logical, systematic, long-range program planning. The large number of feasible alternatives, the complexity of interrelationships among programs, and the uncertainties that exist as to the probable outcome of new combinations and allocations of these elements have frustrated much of the planning efforts of the past and present. High schools and community colleges have not had the necessary manpower or time to comprehensively analyze the effect of alternative policy decisions. Effective planning in the modern institution is not possible without a mechanism that can consider simultaneously all aspects of institution operation and all feasible alternative courses of action. Because of the volume of information involved, planning should make use of the unique capabilities of modern apparatus.

High schools and community colleges have in the past developed detailed information about their activities and resources. Much of this information has been converted to a record format that is compatible with modern data processing techniques. The emphasis, however, has been on manipulation of data for functions that are essentially housekeeping in nature.

One of the new and dynamic approaches to long-range planning that will enable institutions to make faster, more accurate and more meaningful decisions for an increasingly complex future is the concept of the Planning, Programing and Budgeting System (PPBS).

The primary purpose of PPBS is to achieve a more effective allocation of available resources over a period of time. Under this technique, plans are designed around program elements such as curriculums, schools and departments, rather than around object classifications. The process can be described in four steps and should be studied by Oregon's high schools and community colleges facing the growth pattern brought to light by this study and those of similar nature. They are: (a) establish realistic, measurable goals and priorities, (b) evaluate alternative plans for attaining the goals within assigned priorities, (c) project resource demands of selected programs over the planning period, and (d) measure performance against projections.[2]

## The Conceptual Bases for Occupational Program Development

The Oregon Board of Education, Division of Community Colleges and Vocational Education publication, Guide to Structure and Articulation of Occupational Education Programs (hereinafter referred to as "Guide"), provides the basic assumptions on which Task Force II has developed this report. It further helps define the relationship between high school and community college occupational education. The high school role is twofold. High school occupational education programs must prepare students for immediate entry into the world of work. It is also complementary to the program of advanced and continuing occupational education and training in the community colleges. Community colleges are public schools as much as high schools are; neither should consider themselves to be autonomous and separate entities. Both should continue to focus on the following:

1. A flexibility in program which will permit the rapid adjustment of vocational offerings to the realities of the occupational world, and prevent the introduction or survival of obsolescent offerings.

2. The abandonment of the attempt to predetermine the occupational education destiny of youth in school on the polarized concept of college-bound versus work-bound.

3. Recognition that study and mastery of the basic academic learnings constitute not only the indispensible foundations for job training and job security but in reality have become in themselves the most salable and most enduring job skills that the worker can possess.

4. A curriculum which will prepare youth to expect and accept change rather than stability as a condition of occupational life.[1]

High School and Community College Roles: In the years immediately following the passage of the National Defense Education Act of 1958, James B. Conant wrote a series of books examining the different levels and problems of American education. A former president of Harvard University, Conant argued that the existing educational structure was basically sound even though it needed some basic and immediate reforms. In The American High School (1959) and Slums and Suburbs (1961), he strongly defended the need for vocational education programs in American schools. He felt that traditional vocational programs were worthy of study and advocated that they be part of the program of the comprehensive high schools rather than exist as separate vocational schools. He believed that students enrolled in vocational programs should also receive a solid general education and that administrators should make every effort to prevent their "isolation from the other students." Finally, he urged that students must see the relevance of vocational courses to their future careers and that vocational programs be directly related to the employment opportunities in the different communities.

In view of the technological advances and the strident social problems in contemporary American society, vocational education itself came in for reassessment. Accordingly, President John F. Kennedy appointed a Panel of Consultants on Vocational Education "to review the past achievements and to modernize and redirect the program in terms of the extraordinary developments in technology and in terms of a variety of social and economic needs."[5] As a result of the panel's recommendation, Congress passed the Vocational Education Act of 1963. As much a milestone in the history of vocational education as was the Smith-Hughes Act nearly five decades earlier, it not only strengthened existing programs, but extended vocational concern in areas not previously developed.

The Act called for "instruction so that persons of all ages in all communities will have ready access to vocational training which is of high quality, realistic in relation to employment, and suited to the needs, interests, and ability of the persons concerned." Such persons were identified:

1. Those in high school.
2. Those who have completed or discontinued formal education and are preparing to enter the labor market.
3. Those who have already entered the labor market and who need to upgrade their skills or learn new ones, and
4. Those with educational handicaps.

Never before in its history had vocational education been charged with such a broad and expansive responsibility in American education. Most vocational educators viewed this Act as the second "Magna Carta" in the history of vocational education.

In a generally optimistic vein, one vocational educator prophesied that the "epitaph to vocational education as we have known it may have been written with the passage of the Vocational Education Act of 1963." Because this Act made programs less restrictive and more flexible, vocational educators on the one hand could "no longer hide behind . . . the so-called restrictive federal limitation" while on the other hand, general educators could no longer "rationalize . . . (their) lack of indecision to move precisely into the field of vocational education."[10] This action prompted the clarification of expectations of program planning and the role of the high school and community college in vocational education.

The Cluster Approach: To facilitate use of the "Guide" Task Force II would like to review the conceptual base of the occupational cluster which is becoming a term used and an approach to occupational education programing in both the high school and community college. One major concern to educators is that the high school student avoid a premature commitment to a narrow work specialty and that he be provided enough breadth in initial preparation to enable him to cope more effectively with occupational and employment changes. One such approach in meeting this concern is the cluster concept.

The "Guide" explained the cluster approach to occupational program planning as the classification of occupations into groups because they include identical or similar learnable skills and knowledge. With a background in a cluster or family of occupations, a student may enter employment, be more flexible in changing employment, adjusting to ongoing training, and being regionally mobile. In addition, if the student desires advanced training, this kind of education should qualify him for subsequent enrollment in a community college for more concentrated and specialized education.

Franklin Keller, writing in the NSSE Yearbook in 1943, referred to the need for developing vocational education programs based on families of occupations rather than specific ones; therefore, the cluster concept is not particularly new or complicated. But, because the concept is relatively familiar and uncomplicated, the task of defining occupational clusters appears, on the surface at least, deceptively simple. It is in fact enormously difficult.

The spectrum of occupations and variations of occupations which makes up the occupational structure of the United States and of Oregon is so broad, complex, and subtle that it presently defies analysis and classification through purely objective, mathematical, or machine systems. Despite a number of intensive efforts, no simple, objective, or machine formula has yet been devised to solve the problem of clustering occupations for the development of occupational education programs. The states of Colorado, Maryland, Nebraska, Oregon and Washington are or have been involved in research directed to this end. The Oregon Board of Education, Division of Community Colleges and Vocational Education, is now reaching a breakthrough in the defining process, but with no set formula. It appears to be arduous labor of cross-checking and elimination. Also, in the research process of Task Force I, this same hurdle was encountered because of identifying the manpower needs of Oregon, but the process was only theorized and no formula basis offered.

This is not to suggest that the problem is insurmountable. It may well be that some sort of breakthrough is imminent here. However, for the time being at least, if the advantages of the cluster approach are to be utilized, it becomes necessary to defer the comforts of scientific objectivity and proceed uncertainly with the task at hand: a cooperative effort to forge ahead using the best available information, judgment and expertise.

In Oregon, the clusters identified, the numbers employed in 1967, the numbers needed in 1975, and suggested occupational clusters at the secondary level are as follows:

| CLUSTER IDENTIFICATION | 1967 EMPLOYMENT | NEEDED 1975 |
|---|---|---|
| Food Service Occupations | 40,355 | 17,405 |
| Wood Products Occupations | 28,380 | 6,540 |
| Basic Marketing Occupations | 47,145 | 27,775 |
| Construction Occupations | 22,100 | 9,770 |
| Health Occupations | 17,885 | 6,983 |
| Electrical Occupations | 15,350 | 4,425 |
| Agriculture | 43,100 | 2,770 |
| Mechanical and Repair Occupations | 56,250 | 24,325 |
| Stenographic and Typists | 24,475 | 11,950 |
| Clerical Occupations | 67,300 | 30,690 |
| Accounting Systems | 23,225 | 10,015 |
| Metal Working Occupations | 18,805 | 10,015 |
| Totals: | 404,370 | 162,663 |
| Estimated Employed in 1975: | | 567,033 |

The broad-based clusters outlined for the secondary level above may be aligned with appropriate specialized programs found in Oregon community colleges. (The Oregon community college curriculum chart included in Section III of this report is indicative of the relationship between the secondary clusters and specialized community college occupational programs.) Most community college programs relate directly to one or another of the twelve broad secondary clusters. Moreover, the twelve clusters are illustrative only. Other clusters specific to employment needs of a particular area may be developed and articulated with post-high school specialties.

Secondary Programs: Some general assumptions for basic occupational education program patterns in secondary schools are:

- That the occupational cluster approach to program and development has been adopted for implementation in grades 11 and 12;
- That a program of occupational exploration has been devised for implementation in grades 7 through 10, including a formal offering in occupational information and exploration at the 8th or 9th grade level;

- That the overall program includes adequate guidance and counseling services throughout the grades involved;
- That introductory courses related to the cluster patterns are available to students who elect them at the 9th and 10th grade level. (However, students not electing these would still qualify for entry into the cluster-based curriculums.)

It is specifically assumed that:

- Each occupational curriculum requires a minimum enrollment of 15 in order to be efficient and economical.
- Approximately fifty percent of the total enrollment of high schools will be in the occupational education program.
- A comprehensive program of occupational education will include all 12 cluster-based curriculum patterns.
- A minimum program of occupational education will consist of at least 8 of the clusters developed.
- Most occupational education curriculums identified for the 11th and 12th grades require a minimum of 10 class periods per week to provide the intensive and extensive instruction necessary for effective entry occupational performance. (This is in addition to the regular state and local educational requirements.)

Community College Programs: The basic principles upon which Oregon community colleges operate include:

1. That citizens in a democracy should continually be given the opportunity to increase their knowledge of the world and their ability to perceive and assess information given them;
2. That post-high school education should be available to everyone in a community;
3. That such education beyond high school should be structured to fulfill the needs of both the student and community; and
4. That a community college should maintain an "open door" policy.

In keeping with these principles, Oregon community colleges offer a variety of basic programs:

- The College Transfer Program is designed to provide lower division course work for those students who intend to continue their education at a four-year college or university, leading toward a bachelor's degree.

- Occupational and Paraprofessional Programs are designed to provide technical, vocational and paraprofessional preparation for students who seek to become qualified for immediate employment in the world of work, as well as course work designed to upgrade employed persons.
- The General Education Program is designed to prepare students of all ages to lead fuller and more effective lives as citizens, consumers, and responsible individuals. Course work in this area may be basic to any of the other programs.
- Guidance and Counseling Services Programs are designed to assist students in self-evaluation and in achieving a better understanding of the world of work.
- Programs of Community Services include broad programs in such areas as facilities usage, adult education, fine arts and lecture programs, and community action programs dictated by the needs of the community. The community college may also provide programs of financial assistance, academic, counseling and health and other personal services so that students are given every opportunity to succeed in their chosen program curricula.

Occupational education for young people who have left high school, either as graduates or dropouts, and for adults who need upgrading or retraining, logically belongs in a community college setting. While high school programs generally should be centered on the skills and knowledge common to occupations comprising a cluster and required for entry into an occupational "area" or "family", the technical-vocational programs at the community college are designed to be more specific and specialized. Some of them are highly sophisticated.[8]

## Determining Level of Program Offerings

Increasing development of occupational education in public education settings inevitably brings questions. Among the more prominent of these are questions concerning the level or levels at which occupational education should be offered and, if it is to be offered at more than one level, the relationship of occupational education at one level to that at another.[3 and 8]

Criteria listed below for program allocation stems from the position taken that occupational education is urgently needed at both secondary and community college levels. For many individuals high school is a terminal point in their formal learning experiences. While we must seek the continued education of every individual, we must recognize that it is at that point in life that many individuals must become occupationally prepared to enter into and begin their life's work.

A subcommittee formed of Task Force II members developed the following as recommended criteria for program allocation in high school and community colleges. Conditions under which it may be appropriate for programs to be developed are:

Duplication of Programs:

1. If the area involved (community colleges and high schools) seeks to meet the needs of persons who left high school without special occupational training and later seek such training to prepare themselves for better jobs.
2. If the area involved has a significant student population at the high school level that does not go on to any post-high school program.

High School Level:

1. If the maturity of entrance workers in the occupation, as demanded by employers, can be met by the high school graduate.
2. If the high school program provides depth and breadth sufficient to insure effective entrance level employment of graduates into industry or business in the field for which training was provided, or will enable them to enter specialized post-high school training.
3. If there is sufficient numbers of interested students within a geographical area to provide enrollment for a program.
4. If the high school district, either by itself or in cooperation with other schools, can afford to provide a qualified instructor, the initial installation of equipment required for a quality program, and to maintain the equipment in up-to-date condition.[8]

Community College Level:

1. If the occupation is generally classified in the VoEd Act of 1963 as a semiprofessional type.
2. If the geographical area required in order to recruit sufficient qualified students to optimum size is substantially greater than that encompassed by the high school district.
3. If the maturity demanded by employers for entrance into the occupation is beyond that of the average high school student.
4. If the curriculum content is of such type and level as to require high school graduation or equivalency as a minimum foundation for undertaking the occupation study.
5. Where the needs of students from widely scattered communities with small high schools have little or no provision for vocational education.[8]

## Educational Placement of Students

Another subcommittee of Task Force II attempted to determine current status of student placement in the community colleges and developed placement recommendations.

One of the philosophical foundations for the community college movement in Oregon has been to maintain an open door policy. To enable this philosophy to be carried forth it seems necessary for the student to be accepted and placed at his or her respective readiness level. There are, as previously indicated, certain high school programs and first-year community college courses that are and should be similar. Therefore, it is essential that consideration be given to recognize the student's past achievement in educational and/or occupational experiences.

Student Placement Survey: In reviewing printed materials from community colleges, including current catalogs, it was evident that there was not adequate coverage and/or information concerning advanced placement. Therefore, a study was formulated by Task Force II to determine the present policies and procedures of placement relations in the community college departments of vocational-technical education. A consultant to Task Force II was given the responsibility of interviewing and soliciting responses to a comprehensive questionnaire. However, because of limitations of time and resources, only 10 of the 12 Oregon community colleges were surveyed, and 9 included in the finalized report of the study. (See Appendix E) Nevertheless, general and specific conclusions can now be drawn of generalities only once assumed.

Little consistency existed among Oregon's community colleges surveyed concerning advanced placement of students. Some allowed for advanced placement because students were being placed above the beginning level in curriculums; but in most cases, the advanced placement was inadequate and the procedures for it were not formulated cooperatively between the community college and the secondary schools within its district boundaries. Also, written policy having to do with administrative regulations varied from nonexistent to extensively detailed plans. But the written policy often greatly differed from one community college to the other for no apparent reason, raising the question of the community colleges making effort to establish likeness among themselves, where possible.

The community colleges reviewing this Task Force II report may want to study the entire survey on student placement to review, evaluate and possibly re-establish their existing policies in seeking statewide consistency, where feasible.

Recommended Procedures for Student Placement: Any evaluation procedure established to place students at their proper performance level must include communication between the community college and high school instructional staff and counselors. Such an exchange might be most feasible at a regular lay citizens advisory committee meeting and/or joint articulation meeting, the latter of which should include counselors and instructional staff.

Procedures for recognizing past achievements must be readily available to all new students. The high school and community college counselors, or instructional staff, should examine each student's past record and, if it warrants, place him in contact with community college personnel to begin the appropriate procedures.

Evaluation techniques for placement should be based upon established performance criteria and could assume the form of a skill performance, written examination and/or interview. Evaluation on performance is considered a superior method to determine advanced placement. This evaluation should be made available at the same time in the high school student's career as the college entrance and/or advanced placement examinations.

Task Force II views the idea of advanced placement, either credit by evaluation or course waiver without credit, in occupational education programs as similar to the Advanced Placement Program sponsored by the College Entrance Examination Board. Credit by evaluation is the placement of a student in a particular curriculum above and beyond the normal beginning level. This procedure would provide credit toward a degree or certificate. Provisions may also be made for placement of a student in a particular curriculum above and beyond the normal beginning level without credit toward a degree or certificate, which is called course waiver without credit. It is recommended that credit by evaluation and/or course waiver without credit be provided in each community college of Oregon.

The following are suggested steps for recognizing past achievement in occupational education and work experience:

## A - Credit by Evaluation

1. Student contacts the Dean of Students' office through a counselor.
2. Student is referred to the appropriate Division Chairman for approval to be evaluated.
3. Student is evaluated either by Division Chairman or instructor.
4. Student takes approval to the Business Office and pays the normal tuition charge for each credit hour. (Note: if the student does not pass the evaluation, the tuition charge goes toward the student enrolling in and taking the course.)
5. Division Chairman or instructor reports mark to the appropriate office for recording on the student's record. (Note: a student may request a letter grade or a pass-fail grade before the evaluation is administered.)

## B - Course Waiver Without Credit

1. Student contacts the Dean of Students' office through a counselor.
2. Student is referred to the appropriate Division Chairman for approval to be evaluated.
3. Student is evaluated by the Division Chairman or instructor.
4. Student takes approval or disapproval for course waiver back to the counselor and registers accordingly.

## III. PRESENTATION OF DATA AND FINDINGS

### Trends in Occupational Education Offerings

Enrollments in Oregon High Schools and Community Colleges: Increasing interest in and support for occupational education have produced a dramatic growth in program enrollments at all levels in Oregon. During the 46 years prior to 1964, when the first impact of the Vocational Education Act of 1963 was felt, enrollment in secondary occupational education programs reached only 12,000. In the five years following, enrollment in these programs has increased to approximately 30,000. (See Table 1 and Figure 1)

The enrollment data in Tables 1 through 6 necessarily reflect only enrollments in occupational education programs that meet provisions of the Oregon State Plan for Vocational Education and are eligible to receive federal funds. However, this does not detract from the validity of the data in disclosing enrollment trends, nor does it seriously distort the totals shown.

Table 1

TOTAL ENROLLMENT IN SECONDARY, POST-SECONDARY AND
ADULT VOCATIONAL EDUCATION PROGRAMS 1963-1968*

| Program Level | Enrollments by Academic Year | | | | | |
|---|---|---|---|---|---|---|
| | 1962-63 | 1963-64 | 1964-65 | 1965-66 | 1966-67 | 1967-68 |
| Secondary | 11,827 | 13,592 | 23,705 | 24,820 | 27,387 | 29,655 |
| Post-Secondary | 2,166 | 2,395 | 4,027 | 4,703 | 8,385 | 11,550 |
| Adult | 18,603 | 19,188 | 17,087 | 20,661 | 22,791 | 18,965 |

*Source, Tables 1 through 6: Governor's Manpower Advisory Committee
Subcommittee on Vocational Education, June 17, 1968

For ease in comparing the trends indicated in Table 1, these same data are presented in graph form in Figure 1.

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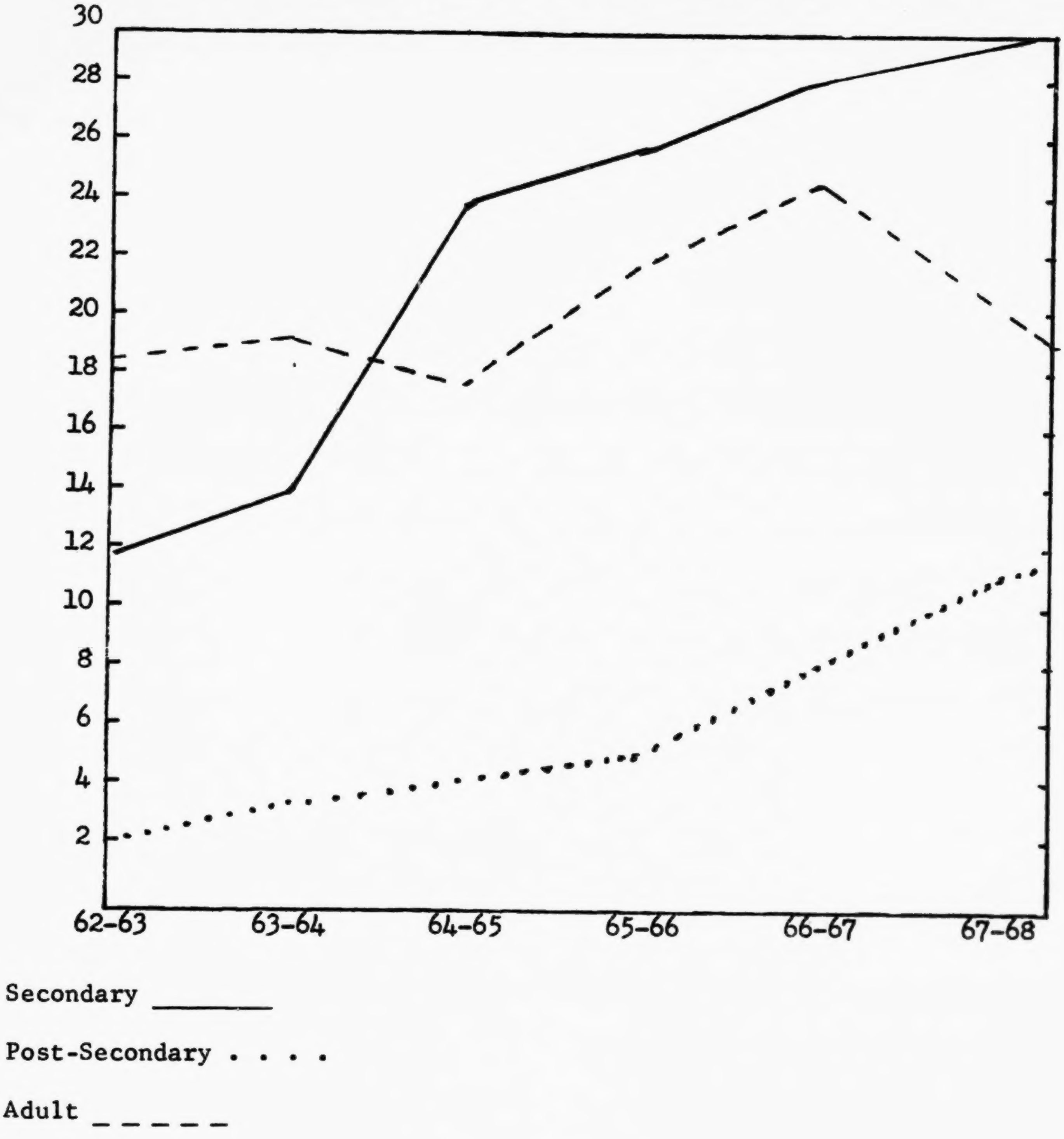
Figure 1

TOTAL ENROLLMENT IN SECONDARY, POST-SECONDARY AND ADULT VOCATIONAL EDUCATION PROGRAMS 1963-68

(Enrollment Totals in Thousands)



The figures in Table 1 and Figure 1 are not indices of existing demand or need for occupational education, but measure only the growth that was achieved through the use of existing resources. Enrollment levels were the result of the interaction of existing demand and the available facilities, equipment, and instructors. It should be noted that the latter were all restraining factors in the development of programs and expansion of enrollment.

Secondary student enrollment in vocational education in the 1967-68 school year reached 29,665, an increase of 2,268 over the 1966-67 year. Projected estimates indicate a need to provide occupational education for 40,000 students in the 11th and 12th grades by 1975. This in itself justifies developing a master plan for comprehensive vocational education programs in Oregon.

The community college movement is growing rapidly in Oregon, as throughout the nation, in the numbers of new institutions coming into being, and also in its concern for the development of occupational education. Nationally, in the early years of its development it was concerned largely with "Lower Divison" or "transfer" programs which provided the first two years of traditional college curriculums. It then began to include curriculums of a professional nature, of sufficient prestige to warrant inclusion in a college-level institution. Technician education subsidized under Title VIII of the National Defense Education Act of 1958 then became acceptable. At present the general pattern toward which the community colleges are working is that of comprehensive occupational education offerings in a wide range of fields. It is felt that post-high school institutions today are the most logical location for specific occupational education offerings.

In Oregon, in terms of titles, occupational preparatory curriculums in the twelve community colleges are now approaching a total of 190. In occupational areas of general and substantial employment opportunities, of course, many of these curriculums serve identical or very similar needs for occupational preparation. If the various curriculum titles are grouped under occupational areas, the total number can be reduced to a more manageable forty-nine, as classified in the Subcommittee on Vocational Education report, "Occupational Education in Oregon: Present Status and Future Needs," June 17, 1968, prepared for the Governor's Manpower Advisory Committee.

This report further stated that since the passage of the 1963 Act research studies concentrating upon expanding the knowledge available for use in planning and implementing occupational education programs have been conducted in 27 of Oregon's 36 counties. These area studies have been a major part of an approach to the problem of obtaining comprehensive information regarding state, area, and local manpower requirements, employment opportunities, human resources, and the presence of and a need for occupational education programs and facilities. A concerted effort by state agencies to cooperate in educational program planning is evident through the Oregon Department of Employment's work with the assignment of Task Force I.

Completion of these studies, the current availability of the findings and their recommendations are important features of the current status of occupational education in Oregon. As immediate sources of significant information concerning employment and students, these studies have provided new insights for avenues to expand and improve occupational curriculums in both secondary schools and community colleges.

Studies were conducted to determine enrollment data in our secondary, post secondary, and adult vocational education programs from 1963 to 1968, as previously shown in Table 1. This data is then presented by occupational areas in Tables 2,3, and 4 below.

## Table 2

## SECONDARY VOCATIONAL EDUCATION
## ENROLLMENTS BY OCCUPATIONAL AREA, 1963 to 1968

| Occupational Area | Enrollments by Academic Year | | | | | |
|---|---|---|---|---|---|---|
| | 1962-63 | 1963-64 | 1964-65 | 1965-66 | 1966-67 | 1967-68 |
| Agriculture | 4,215 | 4,817 | 5,314 | 6,289 | 7,097 | 6,585 |
| Distribution & Mktg. | 839 | 810 | 1,252 | 1,404 | 1,262 | 1,445 |
| Health | | | | | | 84 |
| Home Economics | 6,583 | 7,807 | 7,648 | 7,471 | 8,981 | 10,444 |
| Office | (not reimbursed until 1964) | | 8,537 | 8,467 | 8,555 | 9,131 |
| Trade & Industry | 190 | 158 | 909 | 1,130 | 1,452 | 1,926 |

## Table 3

## POST-SECONDARY VOCATIONAL EDUCATION ENROLLMENTS BY OCCUPATIONAL AREA, 1963 to 1968

| Occupational Area | Enrollments by Academic Year | | | | | |
|---|---|---|---|---|---|---|
| | 1962-63 | 1963-64 | 1964-65 | 1965-66 | 1966-67 | 1967-68 |
| Agriculture | 0 | 0 | 34 | 72 | 258 | 228 |
| Distribution & Mktg. | 0 | 7 | 76 | 75 | 493 | 1,256 |
| Health | 443 | 454 | 418 | 436 | 668 | 696 |
| Home Economics - Gainful (not reimbursed until 1965) | | | | | 181 | 20 |
| Office (not reimbursed until 1964) | | | 964 | 1,472 | 3,353 | 3,282 |
| Technical | 965 | 1,109 | 1,475 | 1,311 | 1,355 | 2,853 |
| Trade & Industry | 768 | 825 | 1,060 | 1,337 | 2,077 | 3,215 |

## Table 4

## ADULT VOCATIONAL EDUCATION ENROLLMENTS BY OCCUPATIONAL AREA, 1963 to 1968

| Occupational Area | Enrollments by Academic Year | | | | | |
|---|---|---|---|---|---|---|
| | 1962-63 | 1963-64 | 1964-65 | 1965-66 | 1966-67 | 1967-68 |
| Agriculture | 899 | 762 | 774 | 1,062 | 865 | 751 |
| Distribution & Mktg | 704 | 902 | 521 | 416 | 856 | 575 |
| Health | 336 | 287 | 129 | 293 | 496 | 382 |
| Home Economics | 8,724 | 9,542 | 8,297 | 8,205 | 8,046 | 6,199 |
| Office (not reimbursed until 1964) | | | 1,133 | 1,436 | 4,096 | 3,440 |
| Technical | 84 | 38 | 80 | 86 | 172 | 305 |
| Trade & Industry | 7,856* | 7,657* | 6,153* | 9,163* | 8,260* | 7,413* |

*Includes apprenticeship enrollment

Tables 5 and 6, following, indicate the projected vocational education enrollments by occupational area for grades 11 and 12, and community college for the years 1967 to 1975. These projections re-emphasized the imperative need for cooperative effort to provide a continuous flow of current data and appropriate study to implement articulation and allocation of curriculum in Oregon's secondary and post-secondary institutions in preparation for Oregon's manpower needs.

Table 5

PROJECTED VOCATIONAL EDUCATION ENROLLMENT IN GRADES 11 and 12 BY OCCUPATIONAL AREA - 1967 to 1975

| Occupational Area | Actual Enrollment 1968 | Enrollment Projections 1971 | 1975 |
|---|---|---|---|
| Agriculture | 2,939 | 3,010 | 2,958 |
| Distribution & Marketing | 1,445 | 5,150 | 7,715 |
| Health | 84 | | |
| Office | 9,131 | 9,810 | 10,753 |
| Personal Service | 368 | 3,395 | 5,597 |
| Trade & Industrial | 1,854 | 8,130 | 12,952 |
| TOTALS | 15,821 | 28,978 | 39,975 |
| Home Economics (other than gainful employment) | 8,981 | 19,650 | 20,800 |

Table 6

PROJECTED COMMUNITY COLLEGE VOCATIONAL EDUCATION ENROLLMENT BY OCCUPATIONAL AREA - 1965 to 1975

| Occupational Area | Actual FTE* 1967 | Projected FTE 1971 | 1975 |
|---|---|---|---|
| Agriculture | 175 | 720 | 1,080 |
| Distribution & Marketing | 301 | 1,877 | 2,815 |
| Office | 2,023 | 2,618 | 3,926 |
| Personal Service | 477 | 1,390 | 2,085 |
| Trade & Industrial (includes technical) | 2,111 | 3,541 | 5,310 |
| TOTALS | 5,087 | 10,146 | 15,216 |

*Full-Time equivalency is based on a student load of 20 clock hours per week in class or laboratory

Total enrollments projected for the secondary level are based upon the conservative estimate that at least 50% of the students in grades 11 and 12 desire and would benefit from enrollment in occupational education programs.

Further data on compilations of vocational enrollment by headcount and full-time equivalency for each community college are found in Table 7, following.

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Table 7

OREGON
COMMUNITY COLLEGE VOCATIONAL ENROLLMENT PROJECTIONS
1968 - 1973*

| | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 |
|---|---|---|---|---|---|---|
| Total FTE | 14,063 | 17,515 | 20,960 | 24,318 | 27,159 | 29,391 |
| Adult FTE (18% of Voc. FTE) | 6,609 | 8,232 | 9,851 | 11,429 | 12,765 | 13,814 |
| Adult Enrollment by Headcount (23=1 FTE) | 1,189 | 1,481 | 1,773 | 2,057 | 2,298 | 2,486 |
| Vocational Prep. FTE (Voc. less Adult) | 27,347 | 34,063 | 40,779 | 47,311 | 52,854 | 57,178 |
| Vocational Prep. Enrollment by Headcount (1.8 = 1 FTE) | 9,756 | 12,151 | 14,540 | 16,869 | 18,840 | 20,390 |

*Source: Oregon Board of Education
Division of Community Colleges
and Vocational Education
(Individual compilation by each community college)

Need for Consistent Program Enrollment Data: During 1966 a series of meetings bringing together labor, business, industry and education leaders were held throughout the state. The summary report, "High School Vocational Education - What Type Makes Sense?" (1967, State Department of Education) reflected opinions of leaders in labor, business, industry and education. It states that "High schools of less than 500 enrollment do not find it economically feasible to offer an adequate vocational education program. There should be a concerted effort on the part of these schools to establish cooperatively an area vocational program to serve all of the schools involved."

Several ways were suggested for high schools, small and large, to achieve cooperative functioning in the development and operation of occupational education programs:

1. To develop a separate area facility jointly administered by the several high schools.
2. To develop an area facility administered by one district with other districts contracting.
3. To establish cooperation through a community college in the area involved.
4. To allocate selected occupational programs to the various high schools within an area and arrange for students from all high schools in the area to receive their occupational instruction in the vocational program at the appropriate high school. Under this arrangement, students would receive their general education in their home school.

Coupled with these suggestions concerning area facilities is the problem of accurate studies to justify development of such undertakings. Before the articulated programs can be developed they must have a common base for identifying both present and projected needs and enrollments. Factors for consideration are present facilities and materials, and future needs of maintenance, expansion, and diversity. Task Force I's report presents a feasible approach to gathering the needed data, especially that concerning employment opportunities.

A variety of data concerning the scope of occupational program enrollments currently exists; however, none really tells a true picture of just how many students are being trained. There is vocational enrollment data as interpreted by the statistical section of the Oregon Board of Education, Research Division, as quoted by the Vocational Education Annual Report for reimbursement purposes, and as area data collected both on the state and local levels which is interpreted by local administration and collected through local studies conducted by districts. These are germane, perhaps, to those making the survey, but are of little value on a state-wide basis for projecting patterns of enrollments and needs or for effecting articulation and justifying allocation of curricula. A feasible solution at this point is having a vehicle created or redesigned which could be administered by the Oregon Board of Education. This may involve a personal visitation and a conference with local institutions to determine the data and then compiling the material to produce the needed information.

Such a data-gathering process would necessarily be a separate undertaking not to be attempted by this Task Force, but would prove to be a valuable tool, and perhaps the tool needed to complete the task undertaken by Task Force I.

Some examples of various types of data concerning enrollments in occupational programs and their inconsistencies in interpretation as collected by Task Force II follows. This data is, of course, in addition to that supplied in Tables 1 - 6 which was compiled in the offices of the Oregon Board of Education, Division of Community Colleges and Vocational Education.

## A. Area and Regional Studies

Much of the school population in Oregon has been covered in area studies of occupational education programs and facilities. These studies were conducted locally with assistance from the Oregon Board of Education and supported with funds from the Vocational Education Act of 1963. Unfortunately, for statewide data interpretation, a consistent format was not followed in all of the studies. Neither has a concerted effort been made to draw similar comparable data from the studies for use in a statewide planning effort.

As a part of Task Force II data interpretation, a cursory analysis was made of Oregon's recent area studies. These included enrollments at the high school level in the program areas of Agriculture Education, Distributive Education, General Education, Office Education and Industrial Education.

Twenty county and/or regional studies of vocational education programs in Oregon were used for obtaining information about these enrollments. Since the studies lacked similarity of method for collecting, presenting and summarizing data, it was difficult to present material that was reliable.

Some of the problems encountered were:

- Duplication of student headcount because enrollment figures were given by course title rather than by primary program.
- Absence of clear guidelines for designating programs either vocational or general education, that is, trades and industry or industrial arts.
- The lack of enrollment figures based on the 12 clusters recommended by the Oregon Board of Education.

The following studies were used in the tabulations shown in Table 12 on page 38:

Klamath County - Listed by program of most electives

Lane County - Up-to-date figures in each of 12 clusters

Clatsop-Tillamook - Program listings, but not including advanced industrial arts

OCCI Region 10 - Tabulation by selected high schools in business and other vocational education

See Appendix for Tables 8, 9, 10 and 11 for basis of the data used.

## Table 12

SUMMARY OF THE NUMBERS AND PERCENTAGES OF 11th and 12th GRADERS ENROLLED IN VOCATIONAL EDUCATION COURSES IN SELECTED OREGON COUNTIES AND SCHOOLS

| County | Office | | Dist.Ed. | | Total Business | | Agri. | | Trades & Adv. Ind. Arts | | Adv. Home Ec. | | Total Other Voc-Ed. | | College Prep and General | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Clatsop-Tillamook | 169 | 9 | | | 169 | 9 | 18 | .9 | 99 | 5.2 | 30 | 2 | 153 | 8.1 | | 81.9 |
| Klamath | 477 | 17.3 | 134 | 4.8 | 611 | 22.1 | 89 | 3.2 | 224 | 8.1 | 187 | 6.8 | 500 | 18.1 | | 59.8 |
| Lane | 941 | 13.7 | 262 | 3.8 | 1,203 | 17.5 | 162 | 2.4 | 617 | 9.0 | *30 | | 809 | 11.4 | | 71.0 |
| Average of Three Areas | | 15% | | 4% | | 19% | | 2.5% | | 8.2% | | | | 14% | | 66% |
| OCCI Region 10 | | | | | 8,093 | 32% | | | | | | | 7,143 | 29% | | |

* Contains only Health and Food Service Cluster courses not traditional advanced home economics

Some findings were:

- That there are discrepancies in comparing individual course enrollments with total school enrollment, even when a large sample is taken. The tabulation of selected high schools in OCCI Region 10 shows a total enrollment of 61% in vocational education for 11th and 12th graders, Lane County shows 29%, Klamath County shows 33.4%, and Clatsop-Tillamook shows 17%.

- That a study of actual programs designed to train students for entry level skills strongly reinforces the need to have and to use comparable basic data. Then these percentages could be used for indicating statewide enrollments in vocational-technical programs.

- That better source of student enrollments may be the state reimbursement program figures for vocational education found in the annual reports of the school districts than tabulations received from other, unlike, sources to categorize the listing of students in a program rather than course enrollments.

- The enrollments from the three county studies selected appear to be as reliable as can be found for projecting statewide trends.

## B. Secondary Enrollment Data

The Research and School Finance Section, Division of Administrative Services, Oregon Board of Education, annually collects data regarding enrollments in every secondary school. Table 13 on page 40 is a presentation of the courses reported to be occupationally based, with the number of sections offered and student enrollments reported in the fall of 1967.

## Table 13

## OCCUPATIONAL BASED COURSES, INCLUDING NUMBER OF SELECTIONS AND STUDENT ENROLLMENTS, AS REPORTED TO THE OREGON BOARD OF EDUCATION, FALL 1967

| Reporting Code | Course | Section | Enrollment |
|---|---|---|---|
| 6000 | Business Education (General) | | |
| 6110 | General Business | 192 | 4,762 |
| 6120 | Personal Typing | 155 | 4,716 |
| 6130 | Typewriting I | 823 | 25,545 |
| 6150 | Business Law | 144 | 3,420 |
| 6180 | Business Math | 20 | 399 |
| 6230 | Briefhand | 43 | 933 |
| 6900 | Other Business Education | 187 | 4,162 |
| 7000 | Practical Arts, Health & PE | | |
| 7310 | General Shop | 346 | 7,000 |
| 7311 | General Shop I & II | 116 | 2,085 |
| 7313 | General Shop III & IV | 30 | 582 |
| 7320 | Mechanical Drawing | 139 | 3,046 |
| 7321 | Mech. Drawing I & II | 256 | 5,397 |
| 7323 | Mech. Drawing III & IV | 79 | 1,405 |
| 7330 | Metal Shop | 109 | 2,017 |
| 7331 | Metal Shop I & II | 161 | 3,793 |
| 7333 | Metal Shop III & IV | 56 | 920 |
| 7340 | Wood Shop | 269 | 5,288 |
| 7341 | Wood Shop I & II | 316 | 5,777 |
| 7343 | Wood Shop III & IV | 137 | 2,439 |
| 7350 | Electricity & Electronics | 155 | 2,929 |
| 7360 | Auto Mechanics | 110 | 2,003 |
| 7370 | Machine Shop | 33 | 660 |
| 7329 | Graphic Arts | 21 | 353 |
| 7381 | Plastics | 7 | 102 |
| 7382 | Leather Craft | 12 | 207 |
| 8000 | Vocational Education | | |
| 8110 | Agriculture I | 113 | 2,037 |
| 8120 | Agriculture II | 87 | 1,330 |
| 8130 | Agriculture III | 87 | 1,077 |
| 8140 | Agriculture IV | 65 | 757 |
| 8150 | Forestry | 24 | 444 |
| 8160 | Sup. Work Experience | 33 | 592 |
| 8210 | Home Economics I | 372 | 7,141 |
| 8220 | Home Economics II | 326 | 6,106 |
| 8230 | Home Economics III | 246 | 4,167 |
| 8240 | Home Economics IV | 196 | 3,545 |
| 8250 | Home Econ. (Wage Earning) | 24 | 352 |
| 8310 | Marketing - 11th Grade | 14 | 278 |
| 8320 | Marketing - 12th Grade | 28 | 591 |

(Cont.)

Table 13 (Continued)

OCCUPATIONAL BASED COURSES,
INCLUDING NUMBER OF SELECTIONS AND STUDENT ENROLLMENTS,
AS REPORTED TO THE OREGON BOARD OF EDUCATION, FALL 1967

| Reporting Code | Course | Section | Enrollment |
|---|---|---|---|
| 8330 | Cooperative Work Experience | 61 | 1,107 |
| 8410 | Metal Working | 61 | 1,032 |
| 8420 | Mechanics | 78 | 1,219 |
| 8430 | Building Construction | 51 | 732 |
| 8440 | Electronics | 62 | 941 |
| 8450 | Drafting and Design | 73 | 1,257 |
| 8460 | Health Occupations | 10 | 168 |
| 8470 | Cooperative Work Experience | 67 | 1,042 |
| 8610 | Typewriting II | 256 | 6,513 |
| 8620 | Business English | 42 | 1,236 |
| 8630 | Business Machines | 63 | 1,147 |
| 8640 | Shorthand I | 221 | 4,486 |
| 8650 | Shorthand II | 89 | 1,280 |
| 8660 | Bookkeeping I | 321 | 7,402 |
| 8670 | Bookkeeping II | 34 | 537 |
| 8680 | Office Practice | 167 | 2,563 |
| 8690 | Filing and Indexing | 5 | 139 |

Source: Oregon Board of Education
Research and School Finance
Administrative Field Services Division

## C. Community College Occupational Program Data

One of the first efforts of Task Force II, done in conjunction with Task Force III, was to compile a listing of all occupational programs in Oregon's 12 community colleges, grouped by the suggested 12 occupational clusters for secondary schools. A review of each community college's current catalog was made initially to select the occupational curricula. These were noted and sent to each institution, asking for revisions, deletions and additions. The compiled data was then reviewed by Task Force III, which had in its membership a representative of each community college, to further increase its accuracy of interpretation.

Significant problems encountered in the development of this listing were:

1. A reluctance by community college administrators to have any public reference point of curricular listings other than their current college catalog.
2. A lack of uniformity in the titles of curriculums covering essentially the same occupational groupings.
3. The impracticality of presenting sufficient information about each curriculum (i.e., length, entry and exit options, degree or certificate program, availability to different student groups).
4. The lack of knowledge concerning the 12 proposed secondary occupational clusters and their relationship to more specific curriculum offerings at the community college.
5. Considerable overlap in curricular objectives.

Table 14 which follows is believed by Task Force II members to be the most up-to-date and most accurate listing of Oregon community college curriculums available. Task Force III gave approval for this to be included in the Counselors' Handbook on Community Colleges in Oregon, 1969 publication by the Guidance Section, Special Services Division, Oregon Board of Education.

## Table 14

## COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS

### Programs Grouped by Secondary Occupational Clusters

NOTE: The following listing of community college programs reflects as accurately as possible the current occupational education offerings of Oregon's 12 community colleges. Most programs listed provide for a two-year associate degree program. However, almost all programs can be varied in length, as well as emphasis, to suit specific student and employment needs. A community college may also add or delete programs as need indicates.

Those interested should check with the specific college for possible variations within programs, as well as additions or deletions to this listing.

| Cluster | Blue Mountain | Central Oregon | Clackamas | Clatsop | Lane | Linn-Benton | Mt. Hood | Portland | Salem | Southwestern | Treasure Valley | Umpqua |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MECHANICAL | | | | | | | | | | | | |
| Agricultural Mechanics | | | | | | | | | | | X | |
| Aero Airframe Mechanics | | | | | X | | | X | | | | |
| Aero Power Plant Mechanics | | | | | X | | | | | | | |
| Automotive Mechanics | X | X | X | X | X | X | X | X | | X | X | X |
| Automotive Parts Sales | | | | | | | | | | | X | |
| Automotive Body & Fender Repair | X | X | X | | X | X | | | | | | |
| Aviation Mechanics | | | | | | | X | | | | | |
| Diesel Mechanics | X | | | | X | | | | | | | |
| Electronic Mechanics | | | X | | | | X | | | | | |
| Flight Technology | | | | | X | | X | | | | | |
| Industrial Mechanics | | X | | | | X | | | X | X | | |
| Mechanics | | | | | | | | | | | X | |
| Mechanical Drafting Tech. | | | X | | | | | | X | | X | |
| Mechanical Engr. Tech. | | | | | | | | | X | | | |
| Office Machines Repair | | X | | | | | | | | | | |
| Supervisory Training | | | | | | X | | | X | X | | |
| Welding | | | X | X | | | | | | | | |

## Table 14 (Continued)

## COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS

| Cluster | Blue Mountain | Central Oregon | Clackamas | Clatsop | Lane | Linn-Benton | Mt. Hood | Portland | Salem | Southwestern | Treasure Valley | Umpqua |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL CLERICAL | | | | | | | | | | | | |
| Cashiering-Checking | | | | | | | | X | X | | | |
| Clerk-Typist | | | | | X | | X | | | X | | |
| Clerk-Steno | | | | | X | | | | X | X | | |
| Clerk-Bkkpg. | | | X | | X | X | | | X | | | X |
| Clerical (Multi-training) | | | | | | | | X | | X | | |
| General Business Office Clerical | X | X | | X | | | | X | X | X | X | |
| Data Processing | | | | X | | X | | | | X | | |
| Key Punch Operator | | | | | X | | | | | X | | X |
| Machine Operator | | | | | X | | | | X | X | | |
| Computer Programming | | | X | | X | | | | X | X | | |
| Library Assistant | | | | | | | | | | | X | |
| SECRETARIAL | | | | | | | | | | | | |
| Secretarial | X | X | X | X | X | X | X | X | X | X | | |
| Executive Secretary | | | X | | | | | | | X | X | |
| Legal Secretary | | | X | | | | | X | | | | |
| Medical Secretary | | | X | | | | X | X | | | | |
| Office Management | | | | | | X | | | | | X | |
| Stenography | | | | | | | | | X | X | X | X |

## Table 14 (Continued)

## COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS

| Cluster | Blue Mountain | Central Oregon | Clackamas | Clatsop | Lane | Linn-Benton | Mt. Hood | Portland | Salem | Southwestern | Treasure Valley | Umpqua |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BASIC MARKETING | | | | | | | | | | | | |
| Business Management | | | | | | | X | X | | X | | |
| Aviation (Sales) | | | | | | | X | | | | | |
| Computer Operation | | X | | | X | | | X | X | X | | |
| Sales | | X | | | | | | | | X | | |
| Transportation | | | | | | | | X | | | | |
| Forestry | | | | X | | | | | | | | |
| Journalism Technician | | | | | X | | | | | | | |
| Mass Communications | | | | | | | X | | | | | |
| Mid-Management | | | | | X | X | X | | | | X | |
| Merchandising | | | X | X | | | | X | | | | |
| Radio Broadcasting | X | | | | X | | | | | | | |
| Television Broadcasting | | | | | X | | | | | | | |
| Radio-Television Broadcasting | | | | | | | X | | | | | |
| Real Estate | X | | | | | | X | X | X | | X | X |
| BOOKKEEPING-ACCOUNTING | | | | | | | | | | | | |
| Accounting Technology | X | | | X | | | X | X | | | | X |
| Bookkeeping-Clerical | | | X | | X | X | | | X | X | | |
| Bookkeeping-Accounting | | X | | | X | | | X | X | | | |
| Electric Accounting Machines Technician | | | | | | | | | X | | | |
| Electronic Data Processing Technician | X | | | | | X | | X | X | | | |
| Business Data Processing | | | X | | | | | | | | | |

## Table 14 (Continued)

## COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS

| Cluster | Blue Mountain | Central Oregon | Clacka-mas | Clatsop | Lane | Linn-Benton | Mt. Hood | Port-land | Salem | South-western | Treasure Valley | Umpqua |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AGRICULTURE | | | | | | | | | | | | |
| Agriculture & Industrial Equip. Tech. | | | | | X | | | | | | | |
| Agriculture Equip.Repair | | | | | | | | | | | X | |
| Food Processing Tech. | | | | | | | X | | | | | |
| Forestry Aide | | X | | | | | | | X | | | |
| Forestry Technician | | X | | X | X | | X | | X | X | | X |
| Grain-Feed-Seed Farm Supply Tech. | | | | | | X | | | | | | |
| Horticulture: Landscape Business | | | | | | | X | | | | | |
| Ornamental | | | X | | | | | | | | | |
| Landscape Public Grounds Management | | | | | | | | | | | X | |
| Outdoor Recreation-Conservation Tech. | | | | | | | | | | | X | |
| Livestock Technology | | | | X | | | | | | | | |
| Range and Ranch Management | | | | | | | | | | | X | |
| Technical Agriculture | X | | | | | | | | | | X | |
| FOOD SERVICE | | | | | | | | | | | | |
| Food Process Technology | | | | | | | X | | | | | |
| Fry Cook | | | | | X | | | | | | | |
| Quantity Food Preparation | | | | | | | | X | | | | |

Table 14 (Continued)

COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS

| Cluster | Blue Mountain | Central Oregon | Clackamas | Clatsop | Lane | Linn-Benton | Mt. Hood | Portland | Salem | Southwestern | Treasure Valley | Umpqua |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BUILDING CONSTRUCTION | | | | | | | | | | | | |
| Building Construction | | | | | | | | | | | X | |
| Building Materials Mgmt. | | | | | X | | | | | | | |
| Construction Technology | | | | | X | | | | | | | |
| Millwork & Cabinet Making | | | | | X | | | | | | | |
| Civil Engineering Tech. (Structural) | X | | | | X | | X | X | X | X | | |
| Highway Engineering | | | | | | | | X | X | | | |
| Surveyor Technician | | | | | | | | | X | | | |
| Drafting Technology | | | X | | X | | | | X | | X | X |
| Architectural Tech. | | | | | | | | X | X | | | |
| Civil & Structural Drafting Tech. | | | | | | | | | X | X | | |
| Machine Technology | | | | | | | | X | X | | | |
| Technical Illustration Tech. | | | | | | | | X | X | | | |
| General Drafting | X | | | | | | X | | X | X | X | |
| WOOD PRODUCTS | | | | | | | | | | | | |
| Forest Products Tech. | | | | | | | | | X | X | | |
| Wood Paper & Building Material Technician | | | | | | | | | X | | | |
| METAL WORKING | | | | | | | | | | | | |
| Machinist | | | | X | | | | X | | | | |
| Machine Shop Tech. - 1 | | | X | | X | | | | X | X | | |
| Supervisory Training | | | | | | X | | | | X | | |
| Welding | | X | X | X | X | X | X | X | X | | | |
| Welding Technology | | | | | X | | | | | | X | |
| Welding & Fabrication Tech. | | | X | | | | | | X | | | |
| Industrial Electronics | | | | | | | | | | | X | |

Table 14 (Continued)

COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS

| Cluster | Blue Mountain | Central Oregon | Clackamas | Clatsop | Lane | Linn-Benton | Mt. Hood | Portland | Salem | Southwestern | Treasure Valley | Umpqua |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HEALTH OCCUPATIONS | | | | | | | | | | | | |
| Dental Assistant | X | | | | X | | | X | X | | | |
| Dental Tech. | | | | | | | | X | | | | |
| Dental Hygienist | | | | | X | | | | | | | |
| Health Occup. Tr. Program | | | | | | | | | | | X | |
| Home Health Aide | | | | | X | | | | | | | |
| Medical Assistant | | | X | | | | | | X | | | |
| Nursing Asst., Orderlies, Aides | | | | | X | X | | | | | | |
| Occupational Ther. Asst. | | | | | | | X | | | | | |
| Physical Therapy Asst. | | | | | | | X | | | | | |
| Practical Nursing | X | X | X | | X | | X | X | X | X | X | X |
| Recreation Assistant | | | | | | | X | | | | | |
| Technical Nursing (ADN) | | | | | X | | | X | X | | | |
| ELECTRICAL | | | | | | | | | | | | |
| Aviation Electronics | | | | | | | X | | | | | |
| Communications Tech. | | | X | | | | | | | | | |
| Electro-Electric Drafting Tech. | | | X | X | | | | | X | | | |
| Electronic-Engr. Tech. | X | X | | X | X | | | X | X | X | | |
| Electronic-Mech. Tech. | | | X | | | | | | | X | | |
| Industrial Electro/ Communications Tech. | | | | | | | | | X | | | |
| Industrial Electronics Program | | | | | | | | | | X | X | |
| Instrumentation and Control Tech. | | | | | | | | X | | | | |
| TV-Radio Service | | | | | X | | | X | X | | | |
| Home Appliance Service | | | | | X | | | | | | | |
| Domestic Refrigeration Service | | | | | X | | | | | | | |

Table 14 (Continued)

COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS

| Cluster | Blue Mountain | Central Oregon | Clackamas | Clatsop | Lane | Linn-Benton | Mt. Hood | Portland | Salem | Southwestern | Treasure Valley | Umpqua |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OTHER | | | | | | | | | | | | |
| Chemical Technician Quality Control | | | | | | | X | X | | | | |
| Commercial Flight Trng. | X | | | | | | | | | | | |
| Flight Technology | | | | | X | | | | | | | |
| Commercial Pilot | | | X | | | | | | | | X | |
| Heavy Equip. Operator (+ Diesel) | | | | | | | | | | | | X |
| Graphic Art | | | | | | | | X | | | | |
| Building Maintenance | | | | | X | | | | | | | |
| Home Economics (Art (Business Mgmt. | | | | | | X | | X | | | | |
| Instructional Materials Aides | | | | | | | | X | | | | |
| Fire Protection Tech. | | | X | | X | X | | X | X | | | X |
| Law Enforcement-Police Science | X | | X | X | X | | | X | | X | X | X |
| Marine Technology | | | | X | | | | | | | | |
| Well Drilling Tech. | | | | | | | | | X | | | |
| Teacher's Aide | | | X | | | | | | | | | |

## Essential Elements in Articulation of Occupational Education Programs

In addition to the need for adequate data regarding occupational education, other essential elements of the articulation process were identified by Task Force II. These included:

- High school and community college instructor and administrator relations
- Cooperative work experience programs
- Exploratory programs
- Guidance involvement
- Advisory committees
- Business and industry
- Apprenticeship

These elements have been expanded in an attempt to give some direction for facilitating program articulation.

### High School-Community College Instructor and Administrator Relations:

As has been stated, articulation is the process of transfer and progression of students from one level of educational offerings to another level. To be effective, articulation is needed both within single educational units and between educational agencies wherever joint concerns and responsibilities exist. This can be related to teachers and administrators of occupational education via:

- Joint inservice training
- Preservice training
- Liaison and planned joint relationships
- Planned dialogue
- Articulation committees

In order to meet our obligations in the field of occupational education, educators at all levels must pool their work resources in a team effort. The left hand must know what the right hand is doing in order that the best possible plan for education can be established and can be effectively followed by secondary and post-secondary schools.

Most teachers in secondary schools, as well as in post-secondary institutions, recognize the advantages of a unified or articulated approach and see what might be the futility of effort when programs do not fit into a systematic whole. In order to expedite the transition, the following should be explored in depth:

1. Closer professional relationships be established between the personnel of secondary schools and post-secondary schools in every area of the state.
2. Joint planning of curricula at the high school and post-high school levels to assure continuity of learning.
3. Joint public information activities to present the state's total program of vocational education.
4. Joint efforts in evaluating the effectiveness of all vocational education programs.
5. An exchange of curriculum information.
6. A joint effort in providing both preservice and inservice training for professional personnel for occupational education programs.

If structure is necessary to insure joint inservice training, preservice training, liaison, planned joint relationships, dialogue and committees on articulation, it has been strongly suggested that an agency above the local level act as catalyst and change agent to facilitate effort in this direction.

It has been voiced many times, "There are two types of articulation, voluntary and imposed. If educators do not start communicating and articulating curricula, somebody else will without too much regard to local wishes."

Some suggested ways in which vocational personnel can assist in the articulation process are:

- Arranging tours of community college facilities for secondary students and others during the school day and after school hours.

- Using catalogs and brochures from the community colleges in the guidance and instructional programs.
- Providing for personnel from the community colleges to visit vocational classes in the secondary institutions to acquaint students with offerings and the personnel of the community colleges.
- Provide information to secondary students regarding the availability of financial assistance in the community colleges for the different areas of instruction.
- Assign research studies to secondary students concerning community college offerings, either those in which the student is personally interested or for report purposes to the class.
- Attend, and encourage and assist secondary students to attend, community college functions, such as open houses and course demonstrations.
- Serve on secondary and community college councils and committees.
- Teach or conduct special classes in secondary and community college facilities.
- Secure present and former community college students as speakers for secondary vocational classes.
- Request to be placed on mailing lists for brochures, announcements and other mailings of occupational education interest from secondary schools and community colleges.
- Periodically use secondary personnel as resource teachers in the community college program.

Greater effort must be made to articulate high school and post-high school occupational education in order that students may progress from one level to the other with a minimum of duplication in courses and course content. Joint planning of curricula at the high school and post-high school levels is necessary to assure continuity of learning, minimum of content duplication and quality instruction. Such planning should begin at the state level, but must ultimately be implemented at the local level.[6]

Cooperative Work Experience: It appears that one of the ways to broaden vocational education and to facilitate career development is through the expansion of cooperative work experience programs. Such programs have been highly successful in the field of Distributive Education. Large numbers of students have found it possible to work part of each day in a business establishment, while spending the remainder of the day in school studying the theoretical portion of vocational subjects and strengthening their basic education skills. The cooperative approach has also been used in other areas of occupational education, but not nearly to the same extent as in Distributive Education.

It would seem worthwhile to examine carefully such programs as have been carried out to determine how well they have worked. Questions that might be asked are:

- What factors seem to be related to success and failure of the program?
- Do such programs work best when preparatory work in the school setting precedes on-the-job work experience?
- How much supervision by school personnel seems necessary for such programs to work successfully?

The experience of the Neighborhood Youth Corps is worth examining. Young people from deprived backgrounds have been given opportunities to work in a wide variety of occupational settings such as non-profit agencies related to government, health and recreation. It would seem that these agencies offer a fertile field for job exploration and for applying the knowledge and skill taught in the occupational education classroom.

One might also consider some practices of the Manpower Development and Training Program, not only the orientation and curriculum content of Skills Centers, but also the on-the-job training programs sponsored by industrial groups. One such program, being carried out in conjunction with the machine tool industry, pays owners of machine tool companies for providing machinist apprentices training opportunities. MDTA funds are also being used to reimburse automotive apprentices.

If the concept of reimbursing industry for accepting training responsibilities has any merit, how far can it be extended? One advantage of the approach, if it is workable, would be a tremendous expansion of the fields in which training could be offered. Vocational programs would no longer have to be limited to a relatively small number of occupations. The training provided would be on up-to-date equipment, frequently beyond the reach of the average school. Moreover, the trainees would be backed by the training resources of industry. It would seem worthwhile to explore with industry the possibility of contracting to use training facilities and training personnel during such times as these are not required for company training programs.

Teacher qualifications are, of course, central if any constructive change is to really work in practice. Cooperative work experience programs invariably are confronted by the danger that the work and school experiences of a student may actually turn out to be two valuable but relatively independent experiences. What is called for is a cross-flow of educators and work supervisors between work and education. This is in many ways more critical than student cross-flow. Only by personal involvement of both educators and work supervisors in each other's activities can an effective fusion and mutual reinforcement of the two student experiences be attained.[4]

The "Guide" refers to "cooperative work experience" as a type of a vocational program, and is the only one currently eligible for federal vocational funds. Employment of students is specifically within the occupations for which their courses in school are preparing them. The employment serves as a practical laboratory for reinforcing in-school occupational education, or it may be the primary source of training facilities. Students in cooperative work experience education receive both pay and school credit for their work. Work experience may be acquired daily up to one-half of the school day or arrangements may be made to acquire such experience on an alternating weekly or bi-weekly basis.

Characteristics common to cooperative work experience education programs are:

- In high school programs, enrollment is normally open to students in the last year or last two years. An exception is found in agriculture programs where a portion of the on-the-farm experience may be acquired at an earlier level.
- Employment is limited to occupations approved by the school.
- A pattern of organized on-the-job training is followed.
- Supplemental vocational instruction is offered by the school.
- Enrollment in the related studies class, shop, or laboratory is normally limited to students in cooperative programs.
- Employment of student-learners is in conformity with federal, state, and local laws and regulations and is conducted in a way that prevents economic exploitation of the students.
- Employment is appropriate to the vocational objectives of the students.
- Employment is of sufficient duration to develop competencies necessary to prepare the student for entry-level employment in the occupation or occupational field for which training is provided.
- Programs are supervised, directed, or coordinated by a qualified instructor.
- Instructor-coordination time is allowed and is normally equal to class instruction time.
- Teacher-coordinators are usually employed on an extended contract for a portion of the summer months in order to visit potential employers and students and set up training plans.
- Provisions are made to dismiss students from school early so that at least part of the occupational experience may occur during the regular school day.

- Appropriate school credit is given for occupational experience.
- Students enrolled have a declared occupational objective which is a matter of record.

Cooperative work experience education programs are by definition designed to provide authentic work experiences and educational opportunities for the vocational student. This implies, among other things, that the student shall be paid for his efforts, and that the product of his efforts shall be of benefit to the employer. Clearly, a contractual cooperative work experience education program could, depending upon how it is structured, strengthen or weaken such a program. Further, it should be designed to prepare the student for the world of work. If his program of preparation has been a systematic flow through the articulation process from readiness-to-work through his work experience, he will profit, as well as industry, by having a well-tooled cog placed in the gear of employment.

Exploratory Programs: The individual student in the public schools seldom has time in which to consider who he is, or to develop his decision-making potentials. Schools must do more to help young people prepare for economic realities. The effort here is to deal primarily with a limited phase of the problems suggested, a concern with introduction to the world of work. More specifically, exploratory experiences must be provided for all students while they are still young enough to make significant decisions about their curricular choices.

The Final Report of the Education Improvement Advisory Commission, State of Oregon, 1966, stated (on page 61) "Group and individual guidance about occupations should begin during the junior high school years to facilitate wise occupational choice by assuring that every youngster

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becomes familiar with the different types of work that exist."

The American Association of School Administrators, in its 1966 publication Imperatives in Education (Imperative 3) suggested, "It is imperative that the vocational guidance program provide young people with a process of self-evaluation to help them make intelligent choices..." It also adds, "It is imperative that development of attitudes and experiences in vocational education begin early and be continual."

Draper, Feldman, and Venn*, among others, have propounded this general philosophy. What then can be provided in Oregon to relate such goals and exploratory programs to vocational education?

Underlying Basic Assumptions:

1. All students should have an opportunity to explore the broad total of the world of work.
2. All students should have opportunity to develop a self concept.
3. All students should have experiences in meaningful decision making and in accepting responsibility for their own decisions.
4. The junior high school years are a time of high potential for developing an awareness of relevant factors to be considered in decision making.
5. Career choice and its implementation is a developmental process.
6. A challenging experience-centered course that stimulates creative individualism is valid for junior high school students in that they become more aware of both strengths and weaknesses, and reflect more positive interests.
7. A program that provides opportunity for acquiring self understanding and knowledge of the world of work, in combination, will

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*Draper, Dale C., is editor of NASSP publication, Educating for Work, and Staff Member of San Francisco State College.

Feldman, Marvin J., is a Program Officer of the Ford Foundation and author of Making Education Relevant.

Venn, Grant, is editor of Man, Education, and Work and Associate Commissioner of Adult and Vocational Education, United States Office of Education.

contribute much toward helping youth prepare for their place in a complex socio-economic world of reality.

8. More adequate educational goals and tentative career choices may be established by students, as a result of the experiences provided through an organized classroom approach.

The adequacy of any tentative occupational decision is limited when a school fails to make relevant information available which will acquaint youth with the immense diversity of occupational and career possibilities. Parallel to this, it must be recalled that the junior high age person is in a transition state. With this dual realization in mind, the following occupational exploratory approaches are presented as possible considerations which school personnel may wish to utilize in their efforts to provide exploratory occupational experience.

A. Self Understanding Through Occupational Exploration (SUTOE)

SUTOE is a one-year course for ninth graders, developed under the leadership of the Community Colleges and Vocational Education Division, and Guidance Services Section, Oregon Board of Education, in cooperation with the Division of Continuing Education and local school districts. SUTOE provides a broad scale classroom approach to assisting students with educational and career planning, via self appraisal and examination of jobs in relation to the data-people-things conceptual framework of the DOT (Dictionary of Occupational Titles). Occupational and general education, and guidance programs, are linked together in this effort to enable students to take greater advantage of available opportunities in ascertaining and reaching career goals. The course consists of ten units, each of which has several identified behavioral objectives. A wide variety of in-class and out-of-class suggestions for implementation are offered under each objective. Currently, approximately 850 students are enrolled in SUTOE, in either grade 8 or 9, in eighteen school systems in Oregon. Workshops have been conducted to orient selected instructors to this course.

### B. Nine-Week Job Exploratory Modules

A series of introductory units are being prepared whereby students would have the opportunity to become acquainted specifically with the proposed secondary curriculum clusters. The exploratory experiences are designed for use in grades 7 through 10 and are supplementary and complementary to SUTOE and industrial arts.

The modules' activities are designed in behavioral terms, providing for involvement and meaningful experiencing, rather than being restricted to the limits of a traditional classroom environment. A goal of this approach is to encourage those with potential in a given cluster area to examine it in depth and consider its rewards.

By grade 11, or earlier in some cases, individual students may then be better prepared to enroll in major and minor occupational cluster curriculums as preparation for job entry at high school completion. Specially selected instructors should be assigned these modules, and given inservice orientation.

### C. Industrial Arts Experiences

One phase of Industrial Arts Education provides pre-occupational exploratory experiences for the student. An adequate Industrial Arts program promotes understanding of the organization of modern industry, its tools, materials and processes. The experience of actually working with the elements comprising industry provides the student with a knowledge that may be gained in no other way. The emphasis is placed on short-term manipulative/exploratory experiences in grades 7, 8, and 9, found in drafting (sketching), metals, woods, electricity/electronics, power mechanics, industrial plastics and graphic arts. Activities are included to help develop an awareness of and assist the student to develop interest in the many occupational possibilities open to them based on an assessment of their potentials. Senior high school orientation to post-secondary opportunities in technical and occupational programs is included. A well articulated curriculum will provide the student with a smooth transition from the general to the more specific occupational route.

While Industrial Arts is not intended to prepare the student for employment in any specific occupation, the experiences can be valuable in a wise choice of occupational endeavor.

Industrial Arts has much to offer in pre-occupational information in the total school program which includes the elementary school. Here should be provided some opportunity for pupil discovery of interests other than those related to academic courses. Elementary pupils should be engaged in activities involving material things to help acquaint them with the industrial world in which they live.

Guidance Involvement: Successful articulation can be planned for by curriculum specialists, but it will be useless unless employed by the institutions and utilized by the students. These educators must be aware of the structure, and study its complexities, not only by themselves, but with the guidance and counseling of those within their contact. Some aspects of this may be done in groups, but other parts must be done individually. Students, educational administrators and teachers must realize that occupational education is not a one-shot preparatory route, but a life-long process.

This route begins in childhood with early impressions of work life. It continues in full-time school with basic information about occupational life, with exploratory experiences, with basic technological understanding and basic skills, and with specific pre-employment education for entrance into work life. After entering employment, the worker continues to need education for updating, for upgrading, or for preparing himself for an entirely new job. This lifelong education calls for a wide range of program patterns, in different educational settings and on varied education levels.[3]

Counseling personnel must be aware and make it their mission to prepare young people to cope with the profound changes they are certain to encounter during their lifetime. What is their response to National Manpower Administrator for the U. S. Department of Labor, Stanley Ruttenberg's predict that the average 20 year old man in the work force today can be expected to change jobs six or seven times during his remaining work life? Dr. Ruttenberg has stated that "...it is no longer enough to train a young person for a specific job. We must provide him with a sound general education which will equip him to cope with change and enable him to acquire new skills as often as may be necessary."[9]

Those in guidance and counseling must consider where we are now and what short run changes are needed to equip our young people to cope with the world in which they will live. But anything they attempt as a present solution should not detract from the infinitely more difficult and more basic task of designing new programs which will transform our schools into institutions capable of preparing students to live in a complex technological society. And, while they are at it, they should not lose sight of the fact that technology will bring with it more leisure for more people than we have ever known before. Educational counseling and guidance must:

1. Prepare young people to use this leisure wisely and creatively, and
2. Apply influence on those concerned specifically with curriculum articulation to produce a well-rounded program which orients the student for the work world, balanced with readiness to enjoy or wisely utilize leisure time or pursue avocational interests.

Also, in considering the design of a sound program of vocational education, they need to think about some interrelated problems:

1. How can we make sure that every student receives the basic education necessary for occupational preparation?
2. How can we provide each youngster with the information and experiences that he needs in order to make intelligent decisions about his life's work?
3. How can we provide occupational education that is appropriate to the needs, interests, and abilities of young people so that they can enter gainful employment, progress on the job, and cope with changing technology effectively?

The counselor's dependency on adequate curriculum is obvious. He must be acutely aware of his role in the educational circuit. His expertise must be applied to the high school-community college articulation process. If the curriculum is hopelessly inadequate, guidance personnel will not be able to do much more than help the student to make the best of a bad situation. Staying happy in an unhappy school situation can neither be the aim nor the compromise of guidance. Counselors more than anyone else know the "soft spots" in the school curriculum, but their knowledge is seldom tapped to remedy the school situation. Usually the guidance personnel "play it close to their vests." The accumulation of their insights gained through helping students should be shared with all school staff without jeopardizing individual confidences. Until and unless the articulation of curriculum problem is solved, the goals of guidance will hardly be achieved.

A counselor needs to be aware of his own bias and/or limitations of experience which affect the impressions or climate he may create in the guidance program. There is an image of counselors held among many educators that counselors are reluctant to evaluate their effectiveness relative to occupational guidance. Subtle inferences, often not intentional on the counselor's part, appear to place occupational or vocational education in a second-rate position or as an alternate choice for the student to consider.

Vocational teachers often are not cognizant of their guidance function, and may tend to teach in an "upward" direction by raising performance criteria and/or entrance requirements to their classes. Both of these are forms of non-directive guidance by teachers.

Blocker, Plummer and Richardson state in their text, The Two-Year College: A Social Synthesis, Prentice-Hall, 1965, "The fact remains that attention to guidance in many institutions lags considerably behind attention to instructional programs, that many faculty members who are quite proficient in their subject areas have neither the training nor the inclination to undertake extensive guidance of students, and that the diversity of student characteristics demands more than perfunctory attention to the guidance function in programs purposing to offer flexibility in rate or depth of student learning.

"If students are to achieve their full potential, there must be a shift in emphasis from the tactics of teaching to the logistics of learning ...a further requisite is that traditional credit hours and class meetings be adjusted to the specific needs of individual students--measurements should not be the focus of the learning process. The judicious use of comprehensive examinations would provide the necessary data for grading purposes and, at the understanding of various subject-matter areas."

It is not the purpose of this presentation to suggest ways to increase effective counseling and guidance in occupational education institutions. The aim is to show the need for complete involvement of guidance in the articulation of curriculums. This, in itself, is a complex role which may be compared to the salesman of a product--he must be completely knowledgeable of it, be a part of it, believe in it, promote it, sell it, stand behind it, defend it, and be proud of its successes and acknowledge its failures, and justify why.

Advisory Committees: An advisory committee has been described as a group of persons, usually from outside the educational profession, selected for the purpose of offering advice and counsel to the school regarding the vocational program. Members are representatives of the people who are interested in the activities with which the vocational program is concerned.

Use of advisory committees or councils is felt to be of such importance to the overall development of occupational education in the United States that they are specifically provided for in the Vocational Education Amendments of 1968 under Section 104.(a)(1), "National and State Advisory Councils." Duties of the National and State Advisory Committees (councils) differ so slightly, insofar as whom they should include and what function they should perform that they are listed in part from the "Amendments":

The Council shall include persons:

1. Representatives of labor and managment, including persons who have knowledge of the semiskilled, skilled, and technical employment in such occupational fields as agriculture, home economics, distribution and marketing, health, trades, manufacturing, office and service industries, and persons

representative of new and emerging occupational fields.

2. Familiar with manpower problems and administration of manpower programs.

3. Knowledgeable about the administration of state and local vocational education programs, including members of local school boards.

4. Experienced in the education and training of handicapped persons.

5. Familiar with the special problems and needs of individuals disadvantaged by their socio-economic backgrounds.

6. Having special knowledge of post-secondary and adult vocational education programs.

7. Representative of the general public who are not federal employees, including parents and students, except that they may not be representative of categories 1 through 6, and who shall constitute no less than one-third of the total membership.

The Council shall:

1. Advise...concerning the administration of, preparation of general regulations for, and operation of, vocational education programs supported with assistance under this title.

2. Review the administration and operation of vocational education programs under this title, including the effectiveness of such programs in meeting the purposes for which they are established and operated, make recommendations with respect thereto, and make annual reports of its findings and recommendations...

3. Conduct independent evaluations of programs carried out under this title and publish and distribute the results thereof.

Local committees or councils have similar members and duties germane to local issues or needs. Advisory committee members, because of their interest both in institutions and the world of work, have one of the greatest influences on articulation from high school to community college, and from the educational setting to business and industry. They can speak loudly of what they know and experience; theirs is the pulse of realism.

Business and Industry: One of the goals specifically listed by the Oregon State Advisory Council for Vocational Education in their position statement of May, 1968 was, "To provide systematic evaluation of occupational education to assure its relevance to a dynamic and changing world of work." They further stated: "It is of extreme importance that occupational education programs be relevant to and of a quality to meet social and economic needs. The continuously changing patterns of these needs make careful and continuous evaluation of occupational education essential.

"Occupational education must develop and maintain functional relationships with agriculture, business, industry, and government. Programs and program content must be developed in close liaison with these groups and must reflect their needs. The programs implemented must be continually evaluated in terms of how well they correlate with and satisfy these needs."

Apprenticeship: Apprenticeship is a type of vocational education with unique problems. Articulation between occupational education programs and apprenticeship is essential; however, one must understand apprenticeship, its ramifications and function, before attempting articulation between it and occupational education programs.

Apprenticeship is the major training interest of the craft unions. It is a system of standards regulating the apprentice's training, experience, and admission to journeyman status--union or non-union. By majority, the standards are found in the laws of the union, the union-management collective agreement, and/or in the case of registered apprentices, in the rules of federal and state apprenticeship agencies.

Presently, apprenticeship is regulated both by union law embodied in constitutions and collective bargaining. Now, legal regulation has become important in the context of an active manpower policy and civil rights. In reality then, there are three functions that regulate apprenticeship: (a) internal craft unions; (b) collective bargaining; and (c) public policy.

The term of apprenticeship and the number of apprentices per employer are commonly set in each trade's standards. The requirements for entry into the trade, the extent of training, the period and challenge, and working conditions are all part of each trade standard written by the trade and passed upon by the State Apprenticeship Council.

Apprenticeship personnel feel that their route of training is superior because:

1. Better training is made possible by the combination of on-the-job training and related classroom instruction.
2. There is an opportunity for the apprentice to earn wages while learning and producing.
3. Industry has the built-in machinery for matching training to the current demand, and for technological change.

Those opposing apprenticeship produce statistics indicating that many journeymen have acquired their status without completing an "accepted" apprenticeship. These began in various trades as helpers, moved and proved themselves, and were admitted directly into the union. They also contend that in some cases admittance into the apprenticeship program would be denied on grounds which have nothing to do with formal qualification. Title 29, part 30, of the Civil Rights Law has influenced this.

Other criticism of the program, insofar as training is concerned, centers around the type of related instruction, journeymen as instructors, union domination of the apprenticeship committee concerning supply of labor in the craft, and the contractual ratio of apprentices to journeymen.

Before articulation between education and apprenticeship can be accomplished, these rationalizations--often used to support individuals' arguments--must be reconciled:

1. Education has turned out partially trained workmen that will work at a lesser wage and flood the skilled labor market.
2. Educators have and are designing courses from manpower statistics.
3. Educators secure "rubber stamp" advisory committees to approve courses.
4. Educators employ unqualified teachers to instruct skill courses.
5. Industry must retrain workers educators have taught.
6. Industry tends not to allow education to do a job educators are qualified to do.
7. Apprenticeship, without education, is possibly doomed to failure.
8. Education and industry do not often communicate.
9. What can be best taught in the classroom and what can be best taught on the job?
10. If education will not satisfy industry, industry will do its own educating.
11. Let apprenticeship do their own educating--the full time equivalency of apprenticeship is so small, their leaving would not be felt.
12. Without the full support of industry, education would be in trouble.
13. Industry should financially supplement education.
14. There is plenty for both education and industry to do--the end product being skilled workers.
15. School counselors are not doing their jobs--few are included in education-industry planning and few know about apprenticeship.
16. Educators fill vocational instructor course work with "theory-on-how" rather than demonstrated "how-to-do-it" methods, discouraging journeymen-teachers from teacher preparation.
17. Industry questions the reality base of the educator who teaches methods to vocational instructors.

18. Who is better trained in the long run, the journeyman who has gone through apprenticeship or the craftsman who has been trained through vocational education?

What is first suggested is that a more cooperative effort be directed toward articulating education and apprenticeship through analysis and communication. Suggested steps are:

1. Determine what can and should be done by whom.
2. Provide within counselor education useful information about the means and ways of today's industry.
3. Use qualified instructors to train part-time teachers responsible for the upgrading education of journeymen and/or teaching new trainees in the most modern techniques and with the latest equipment.
4. Enable and/or encourage craftsmen to be utilized as part of the education force in public high schools and community colleges.

In summary, the problem is largely a lack of directed action from industry or education, and a serious lack of communication. Both need more social conscience, affirmative action, sanity, and common sense. We are, then, speaking of a change in attitude of many people; and we must be conscious that our opinions so often become so fixed on a specific point, we stop thinking.

### Suggested Patterns of Articulation for Occupational Education

In an effort to provide a starting point for occupational education program articulation, the staff of the Community Colleges and Vocational Education Division of the Oregon Board of Education has been instrumental in developing suggested articulation patterns for occupational areas. These patterns are based upon the cluster approach to occupational education at the secondary level articulating with specialized occupational preparatory programs at the community college level. Suggested articulation patterns for the occupational areas of Agriculture, Business and

Industrial Education have been prepared.

The schematics and their explanation are included only to illustrate a conception and an approach. Care should be taken not to read more into the schematics than they are meant to portray. What may be practical to offer in one educational setting may not be feasible in another. Therefore patterns appropriate to the needs of each occupation cluster area and to the unique needs of the articulating institutions must be developed autonomously.

Following is a brief explanation of the articulation concept in each of the three areas. Details and the schematics are included in the appendices.

Agriculture Education: To meet the needs of today's agriculture student, as well as the needs of production agriculture and agri-industry, a systematic approach to planning and operating a comprehensive occupational preparation curriculum for agricultural occupations must be implemented.

This procedure must provide for strong occupational preparation in agriculture at the high school with planned articulation for students to move into the more specialized vocational-technical curriculums in the community college.

The implementation of effective articulation for agriculture education programs from the secondary to post-secondary levels would minimize confusion and needless duplication in program planning and development. It would also allow for a smooth transition for those students who wish to pursue their occupational objectives in agriculture through further training in a community college program.

Essential to the development and implementation of a comprehensive and articulated program is the identification of those competencies that are common for most agricultural occupations (production and off-farm). This core of competencies should then serve as the basis for the development of the occupational cluster curriculum in agriculture at the secondary level. Program specialization in areas such as forestry, landscape horticulture, agriculture mechanics, agriculture supply and farm management should be provided for most students after they have successfully progressed through the agriculture cluster curriculum. (See Appendix F)

Business Education: The approach to Business Education articulation illustrated in Appendix G, is intended to be flexible and suggestive.

School districts have varying needs and resources and it is recognized that many districts will not be able to offer the comprehensive curriculum outlined here. This information will have served a useful purpose if it stimulates ideas which the individual districts may incorporate in developing and improving their programs in Business Education.

The curriculum patterns presented suggest possible approaches which may be taken in outlining a curriculum. It is believed that the high schools and the post-secondary institutions will better meet the needs of the students if their programs are developed with ample communication and coordination between the two levels. Students should be able to continue their Business Education after secondary training with a minimum amount of repetition and at the same time be able to acquire background material not offered or taken at the secondary level.

Industrial Education: The material presented in Appendix H as an illustrative pattern of articulation for Industrial Education was developed for establishing some common relationships between Industrial Arts and Trade and Industrial Education in Oregon. An additional study now being formulated by the Oregon Board of Education, Division of Community Colleges and Vocational Education, is directed toward identifying elements common in the subject areas of both programs. As in the two preceding sample patterns for program articulation, the reader is urged not to read more into the illustrations than they were intended to portray. At this time a diagram illustrating vertical articulation of the Industrial Education program is not available. A schematic of this elementary through post-high school transition process would be especially helpful to students and education planners at all levels.

## IV. RECOMMENDATIONS

1. An articulation committee be established in each community college district.

   a. Members of the district articulation committees include:

      (1) Representation from each secondary school district within the community college district.

      (2) Representation from the respective community college.

   b. When more than one community college is readily available to students (such as in the Portland Metropolitan Area), provision should be made for:

      (1) A committee which encompasses all community college and secondary school districts, or

      (2) Coordination of a separate committee as established in 1. a. above.

   c. A priority function of the articulation committee of each community college district be to develop and execute:

      (1) A plan of articulation of secondary and community college curricula.

      (2) A plan for educational placement of occupational students in the community college.

2. A statewide articulation-allocation committee be established.

   a. Members of the statewide articulation-allocation committee include:

      (1) Representation of one person from each community college.

      (2) Representation of one person from the secondary school districts within each community college district.

      (3) Representation from the Oregon Board of Education.

   b. Community college and secondary representatives of the statewide articulation-allocation committee be members of their respective community college articulation committees.

3. The Oregon Board of Education establish a statewide data collecting, recording, and disseminating system for both secondary and post-secondary schools.

    a. The existing Oregon Board of Education titled reports be retained, but revised to coincide with the system devised.

    b. The data be comparable to that of other agencies concerned with the needs of and training for the world of work.

    c. Within this statewide system, there be defined "A Vocational Student" which is common for all secondary programs and which is compatible with the definition used at the community college level.

4. The cluster approach, developed in the Oregon Board of Education's Guide to Structure and Articulation of Occupational Education Programs, 1968, be implemented by the Oregon Board of Education as the basis for articulation of Oregon's curriculum in secondary schools.

5. Oregon State University develop and implement programs of preservice and inservice teacher education in all the cluster areas defined in the above-mentioned "Guide" as one part of a comprehensive plan for preparing occupational education personnel.

6. Oregon Board of Education and Oregon State University establish seminars and workshops to familiarize counselors with the world of work and occupational programs in the secondary schools and community colleges of Oregon.

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# APPENDICES

## APPENDIX A

### Table 8

### COMPARISON OF THE NUMBER OF JUNIORS AND SENIORS ENROLLED IN ADVANCED BUSINESS COURSES AND OTHER VOCATIONAL EDUCATION COURSES WITH THE AVERAGE DAILY MEMBERSHIP IN SELECTED HIGH SCHOOLS

| | Jrs. & Srs. | Enr. in Bus. | % of Jrs.& Srs. | Other Voc. Enr. | % of Jrs. Srs. |
|---|---|---|---|---|---|
| Salem HS (North & South) | 2935 | 442 | 15 | 175 | 6 |
| Eugene | 2806 | 1419 | 50 | 1078 | 38 |
| Medford Sr. HS | 1434 | 544 | 38 | 481 | 34 |
| David Douglas HS | 1400 | 568 | 41 | 725 | 52 |
| Springfield HS | 1327 | 182 | 14 | 193 | 15 |
| Klamath UHS (Klamath Falls) | 1085 | 400 | 37 | 48 | 4 |
| Marshfield Sr. HS | 1018 | 191 | 19 | 316 | 30 |
| Hillsboro UH | 904 | 391 | 43 | 276 | 30 |
| Roseburg HS | 904 | 213 | 24 | 500 | 55 |
| Albany UHS | 903 | 418 | 46 | 59 | 7 |
| Gresham HS | 750 | 125 | 17 | 25 | 3 |
| Clackamas HS | 656 | 294 | 45 | 271 | 41 |
| Milwaukie HS | 597 | 183 | 23 | 58 | 10 |
| Oregon City HS | 591 | 162 | 27 | 133 | 23 |
| Pendleton HS | 573 | 122 | 21 | 109 | 19 |
| West Linn HS | 528 | 386 | 75 | 197 | 37 |
| Lane County HS | 505 | 226 | 45 | 92 | 13 |
| McMinnville HS | 481 | 205 | 43 | 343 | 71 |
| Sweet Home HS | 477 | 60 | 13 | 200 | 42 |
| Ashland Sr. HS | 441 | 188 | 43 | 126 | 29 |
| Putnam HS | 415 | 236 | 57 | 62 | 15 |
| Astoria HS | 411 | 50 | 12 | 312 | 76 |
| Silverton UHS | 408 | 41 | 10 | 125 | 31 |
| Reynolds HS (Troutdale) | 401 | 133 | 33 | 13 | 3 |
| Dallas HS | 400 | 150 | 38 | 40 | 10 |
| St. Helens Sr. HS | 394 | 94 | 24 | 380 | 97 |
| North Bend HS | 366 | 97 | 27 | 104 | 28 |
| Hermiston HS | 339 | 249 | 73 | 248 | 73 |
| Crater HS (Central Point) | 285 | 95 | 33 | 93 | 33 |
| Estacada UHS | 270 | 63 | 23 | 95 | 35 |
| Siuslaw HS (Florence) | 190 | 49 | 26 | 98 | 52 |
| Philomath HS | 163 | 110 | 68 | 108 | 66 |
| Halsey HS | 145 | 7 | 5 | 60 | 40 |

# APPENDIX B

## Table 9

### STUDENT CLASSIFICATION OF HIGH SCHOOL PREPARATION
(Two-County Totals by Grades)

| | 10th Grade | | 11th Grade | | 12th Grade | | |
|---|---|---|---|---|---|---|---|
| | Clatsop | Tillamook | Clatsop | Tillamook | Clatsop | Tillamook | TOTALS |
| USEABLE RESPONSES | 407 | 282 | 359 | 270 | 309 | 268 | 1905 |
| College Preparatory | 144<br>35% | 84<br>30% | 138<br>38% | 73<br>27% | 124<br>40% | 86<br>32% | 649<br>34% |
| Vocational Agriculture | 2<br>.49% | 8<br>2.8% | 1<br>.28% | 6<br>2.2% | 0<br>- | 1<br>.37% | 18<br>.9% |
| Business Education | 20<br>4.9% | 18<br>6.4% | 42<br>12% | 31<br>1.1% | 26<br>8.4% | 32<br>1.2% | 169<br>9% |
| Home Economics | 3<br>.74% | 9<br>3.2% | 4<br>1.1% | 12<br>4.4% | 2<br>.65% | 6<br>2.2% | 36<br>2% |
| Trade & Industrial | 14<br>3.4% | 12<br>4.3% | 25<br>7% | 16<br>5.9% | 23<br>7.4% | 9<br>3.4% | 99<br>5.2% |
| General Education | 224<br>55% | 151<br>54% | 149<br>42% | 142<br>53% | 134<br>43% | 134<br>50% | 934<br>49% |

## APPENDIX C

### Table 10

### SPECIFIC AREAS IN WHICH STUDENTS HAVE COMPLETED MOST OF THEIR ELECTIVE COURSES

| In Which of the Following Areas Have You Taken the Most of Your Electives? | Elective Areas | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Agriculture | | Business (Commercial) | | Home Economics | | Industrial Education | | College Preparatory | | Distributive Education | | Technical Education | |
| Schools | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Bly | 2 | 4.4 | 1 | 2.2 | 3 | 6.5 | 4 | 8.7 | 33 | 71.7 | 3 | 6.5 | 0 | 0 |
| Bonanza | 5 | 5.0 | 21 | 21.0 | 7 | 7.0 | 9 | 9.0 | 40 | 40.0 | 4 | 4.0 | 10 | 10.0 |
| Chiloquin | 21 | 19.1 | 18 | 16.4 | 12 | 10.9 | 5 | 4.6 | 37 | 33.6 | 3 | 2.7 | 5 | 4.6 |
| Gilchrist | 0 | 0 | 13 | 14.1 | 15 | 16.3 | 14 | 15.2 | 30 | 32.6 | 10 | 10.9 | 4 | 4.6 |
| Henley | 14 | 3.4 | 69 | 16.9 | 29 | 7.1 | 23 | 5.6 | 139 | 34.0 | 30 | 7.3 | 33 | [illegible]1 |
| Klamath Union | 23 | 1.8 | 246 | 19.5 | 57 | 4.5 | 132 | 10.4 | 558 | 44.1 | 53 | 4.2 | 117 | 9.3 |
| Malin | 9 | 9.9 | 19 | 20.9 | 5 | 5.5 | 3 | 3.3 | 38 | 41.8 | 4 | 4.4 | 3 | 3.3 |
| Mazama | 12 | 2.5 | 65 | 13.4 | 47 | 9.7 | 57 | 11.7 | 215 | 44.2 | 17 | 3.5 | 42 | 8.6 |
| Merrill | 3 | 2.6 | 24 | 20.9 | 12 | 10.4 | 13 | 11.3 | 47 | 40.9 | 5 | 4.4 | 7 | 6.1 |
| Sacred Heart | 0 | 0 | 1 | 2.0 | 0 | 0 | 1 | 2.0 | 41 | 80.4 | 5 | 9.8 | 3 | 5.9 |
| Total | 89 | 3.2 | 477 | 17.3 | 187 | 6.8 | 261 | 9.4 | 1,178 | 42.6 | 134 | 4.8 | 224 | 8.1 |

## APPENDIX D

Table 11

LANE COUNTY SCHOOL DISTRICTS WITH
COURSES IN TWELVE (12) OCCUPATIONAL CLUSTERS
Recommended by the Oregon Board of Education

| | | Marketing | Clerical | Steno | Bookkeeping | Construction | Electrical | Mechanics | Metals | Wood Products | Health Serv. | Food Serv. | Agriculture | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pleasant Hill | | + | * | * | * | * | | + | + | + | | | | |
| Eugene | | * | * | * | * | * | * | * | * | + | + | | | |
| Springfield | | * | * | * | * | * | + | * | * | | | * | * | |
| Fern Ridge | | | * | * | * | * | | * | * | | | | | |
| Creswell | | | * | * | | * | | | + | | | | * | |
| Cottage Grove | | | * | * | * | * | * | * | * | | | | * | |
| Bethel | | + | * | * | * | + | * | * | * | | | + | | |
| Applegate | | | * | * | | * | | | | | | | | |
| Junction City | | | * | * | | * | * | * | * | | | | * | |
| Lowell | | | * | | | * | | | | | | | | |
| Marcola | | | * | * | | * | | | | | | | | |
| Mapleton | | | * | * | | * | | | | | | | | |
| Blachly | | | * | | | | | | | | | | | |
| Florence | | | * | * | | * | | | | | | | | |
| McKenzie | | | * | * | | * | | + | + | | | | | |
| Oakridge | | | * | * | | * | | * | * | | | | | |
| Total Enrolled in County | % | 3.8 | 7.5 | 4.4 | 1.9 | 4.5 | 1.9 | 3.5 | 3.2 | | | .5 | 2.4 | % |
| | | 262 | 509 | 299 | 133 | 306 | 129 | 242 | 216 | 0 | 0 | 30 | 162 | |
| Proposed Enrollment in County | % | 18 | 16 | 7 | 4½ | 4 | 2½ | 13 | 5 | 3 | 5 | 9 | 12 | % |
| | | 728 | 656 | 292 | 133 | 164 | 104 | 538 | 205 | 122 | 205 | 367 | 988 | |

*Have courses in this occupational cluster but not necessarily complete program
+New courses added recently; program still in developmental stage

# APPENDIX E

## HIGH SCHOOL-COMMUNITY COLLEGE
## STUDENT ENROLLMENT AND PLACEMENT RELATIONS

The following is a resume of a report which is information gathered through personal interviews with Deans of Instruction and Vocational-Technical Education Deans and/or Directors of Vocational-Technical Education at nine Oregon community colleges in Western Oregon regarding the subjects of ADVANCED PLACEMENT and HIGH SCHOOL STUDENT CONCURRENT ENROLLMENT at community college, as a part of the Articulation-Coordination Task Force II assignment.

The nine community colleges interviewed are identified by letter, A through J. This is done to add objectivity to the report and to allow flexibility in utilizing information and statements gathered.

The questions and a resume of answers are:

### A. Advanced Placement

Q. Does the college have an advanced placement policy for entering students?

A. Five stated they had a written policy, three indicated they had a policy that was unwritten, and one said they had no policy yet formulated.

Q. What factors are taken into consideration in determining advanced placement?

A. Seven stated that they will accept previous work in transfer programs, and of the seven, two will accept vocational-technical advanced placement; one will not accept any, and one had not had a request and therefore had not made a decision. All made use of aptitude and academic examinations such as CEAB, GATB, ACT, etc.

Q. What are the procedures for determining advanced placement with or without credit?

A. Eight provided for the challenging of courses and granting credit by examination, and one had no such provision. One had policy limiting the challenging, examination and credit to twenty-four credit hours.

Q. If credit is not granted, how does advanced placement apply to a student's program?

A. Eight provided for and one indicated that they had no provision for course waiver. Nevertheless, none granted credit for waiver of course work. All prefer the student challenge by examination method for determining course waiver.

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### B. High School Students Enrolled in Community Colleges

Q. May high school students enroll in community college courses?
A. Eight indicated that they allow high school student enrollment; and the ninth indicated that they did, but not from students in the district that administers their community college.

Q. What procedure is used to facilitate a high school student's enrollment in the community college course work?
A. All nine registrars require written petitions and permission of the high school principals and parents concerned. All indicated that the student must be sixteen years of age; and if no longer attending high school, must be eighteen years of age.

Q. Does your school require a minimum number of credit hours for the Associate in Arts Degree?
A. Six indicated that the student must attain the institution's minimum amount with no exceptions, two stated that they would grant a degree with less credit than prescribed if a letter of explanation was with the degree; and one had no policy, explaining that degrees were granted on achievement, ability and curriculum accomplishments, as well as prior experiences.

### C. General

Q. Are there specific Oregon laws and regulations which need clarification or change in order to facilitate articulation of high school and community college programs?
A. Seven had some degree of concern for clarification and two indicated no concern over the existing laws and regulations or concern for further clarification.

Q. What organization, administrative and/or other changes should be effected to bring about articulation of high school and community college programs?
A. Five of the institutions felt they needed additional communication with and support from the Oregon Board of Education, and four felt the present amount of communication and support was adequate. Each indicated a need for changes and/or clarification of organizational and administrative structures and operations in agencies outside of their own institutions in order to facilitate articulation and coordination of programs.

APPENDIX E, page 3

Table 15

## HIGH SCHOOL-COMMUNITY COLLEGE STUDENT ENROLLMENT AND PLACEMENT RELATIONS

REPORT OF INTERVIEWS

| Comm Coll | AP Policy for Enter. Students | Accept H.S. AP Transfer Credits | Use CEAB, GATB, ACT, other exm. | Credit by Challenge & Exam | Waiver Courses | Grant A.A. Degree on Short Hrs. |
|---|---|---|---|---|---|---|
| A | In General | Yes | Yes | Yes | Yes; Typng & P.E. | No |
| B | Yes; Esp. Voc-Tech | Yes; Voc-Tech too | Yes | Yes New. Pol. | Yes | Yes & No |
| C | In General | Yes Voc-Tech too | Yes | Yes | Yes | No.; Encourage Return |
| D | No Specific Polcy yet | Yes | Yes | Yes | No | No |
| E | Yes | Probably; No case Yet | Yes | Yes | Yes | No; Encourage Return |
| F | Yes | Yes | Yes | Yes | Yes | No |
| G | Yes | Yes | Yes | Yes | Yes | Yes; w/ Explan. Attchd. |
| H | Yes | Yes | Yes | Yes; up to 24 cred hrs | Yes | No; two term res. reqd. |
| J | In General | No | Yes | No polcy right now | Yes & No | No |
| K* | In General | No Response | Yes | Yes | Yes | No Response |

*Information on this CC not spelled out in report summary

## APPENDIX E, page 4

Table 15 (cont.)

| Comm Coll | Current HS Student Enroll | Procedure for HS Enrollmt. | Laws & Regs. Concern | Organ. & Admin. Changes | Other Problem Areas | Spec. Effort or Programs for HS Guid. Counselors |
|---|---|---|---|---|---|---|
| A | Yes | Solicit; Prin. Perm. | Fewer the Better | 1:1 Comm More SDE Consults. | Need more HS Voc Pgms | Yes;Broad prog. incldg trng. inst-visits |
| B | Yes | Prin.Perm. Srs.Only Spec.Cls. | Reimb. Persnnl | HS Adm. view of CC;Good SDE | HS Math HS Couns Orient | Yes |
| C | Yes | Prin.Perm Full Rel. on HS Drp. O. | Believe in local Interp-OK | Comm w/ VED-SDE nds.imp. | HS English | Yes; Broad Program |
| D | Yes | Prin.Perm. & provide for tuitn. | Lec-Lab Credit | State-Fed Reportng System | Dec. on Serve ttl V-T Need | Yes;Guid. Hndbk Plnd Gd. HS Coun.Rel. |
| E | No;Dist. Adm.pol. prevents | Not devlpd yet | Dist. Contracts & lines | Supt.Assn. Relations & Comm. | Cannot legislate Artic-Coord | Yes Successfl openhouse pgm. |
| F | Yes | HS Prin. Request & Clrnce | Laws-Regs to faclte Sm Dist At. | A-C Decs. & Guidlns frm SDE | PgmCoord with HS Area Ctr | Yes; Openhouse & other methods |
| G | Yes | Petition by HS Prin & Couns. | No more needed | Local lev effort for Art-Coord. | Joint CC Progrm offrngs | Yes; VTDir. req.CC instrs meet w/hs countrpt. |
| H | Yes Limited Program | Prefer full HS class;nt indivs. | Dual Cred. HS Drop out regs. | Broader based HS V-T pgms | Ident of best pol. dev.level | some |
| J | Yes | Solicit;HS Prin &Coun Involved | Reimb. Basis | SDE in General | HS Guid. Cnslrs & Mth;Eng. | Yes; limited |
| K* | Yes Limited | Encourage take evng program | none | Need CC Tchr. Prof. Organs. | Staff intrch. Advis. Commtts | Yes |

*Information on this CC not spelled out in report summary

## Appendix F

## SUGGESTED ARTICULATION PATTERNS FOR AGRICULTURE EDUCATION

Tables 16 and 17 are schematics of a proposed approach to the articulation of the high school vocational agriculture curriculums to the vocational-technical agriculture curriculums in the community colleges.

Table 16 depicts the agriculture education program from a cluster curriculum in grades 9, 10 and 11 through moderately specialized options in grade 12, then progresses through more intensive specialization through the second year of the community college programs. Under this pattern, with the successful completion of the twelfth grade curriculum, a student would be prepared for at least entry level employment in an agricultural occupation or would be prepared for advanced placement in a community college technical agriculture curriculum.

In the table, the cross-hatched areas in the twelfth grade options depict the basis for advanced placement into the first phase of the community college curriculum.

Table 17 presents a more detailed breakdown of the articulation from the twelfth grade option (example - Landscape Horticulture) through the second year of the community college program using as examples two of the five second year options as illustrated in Table 16. In this table, program progression is related to subject matter coverage in addition to program level and title. The cross-hatched areas in this table mean the same as those in table 16. Under each of the two options illustrated under the second year of the community college are examples of course titles for the Landscape Development option and the Floriculture option. It should be noted that each community college would have to have a basic beginning point in each vocational-technical curriculum for those students who have had no previous experience or formal education in agriculture.

It becomes obvious that to offer related class instruction in all specialized phases at the high school level would require a large number of students (assuming approximately 15 students per instructional area). Therefore, each secondary program should continue the basic agriculture cluster through the twelfth grade and then provide one or more of the options as shown in Table 16. The number and kind of options offered would depend upon the size of the student population, available resources and needs of the community. In one-teacher departments, especially where it is not feasible to cooperate in program development with other school districts, the specialized instruction for students could be accomplished partially through effective individualized instruction and placement in supervised occupational experience programs.

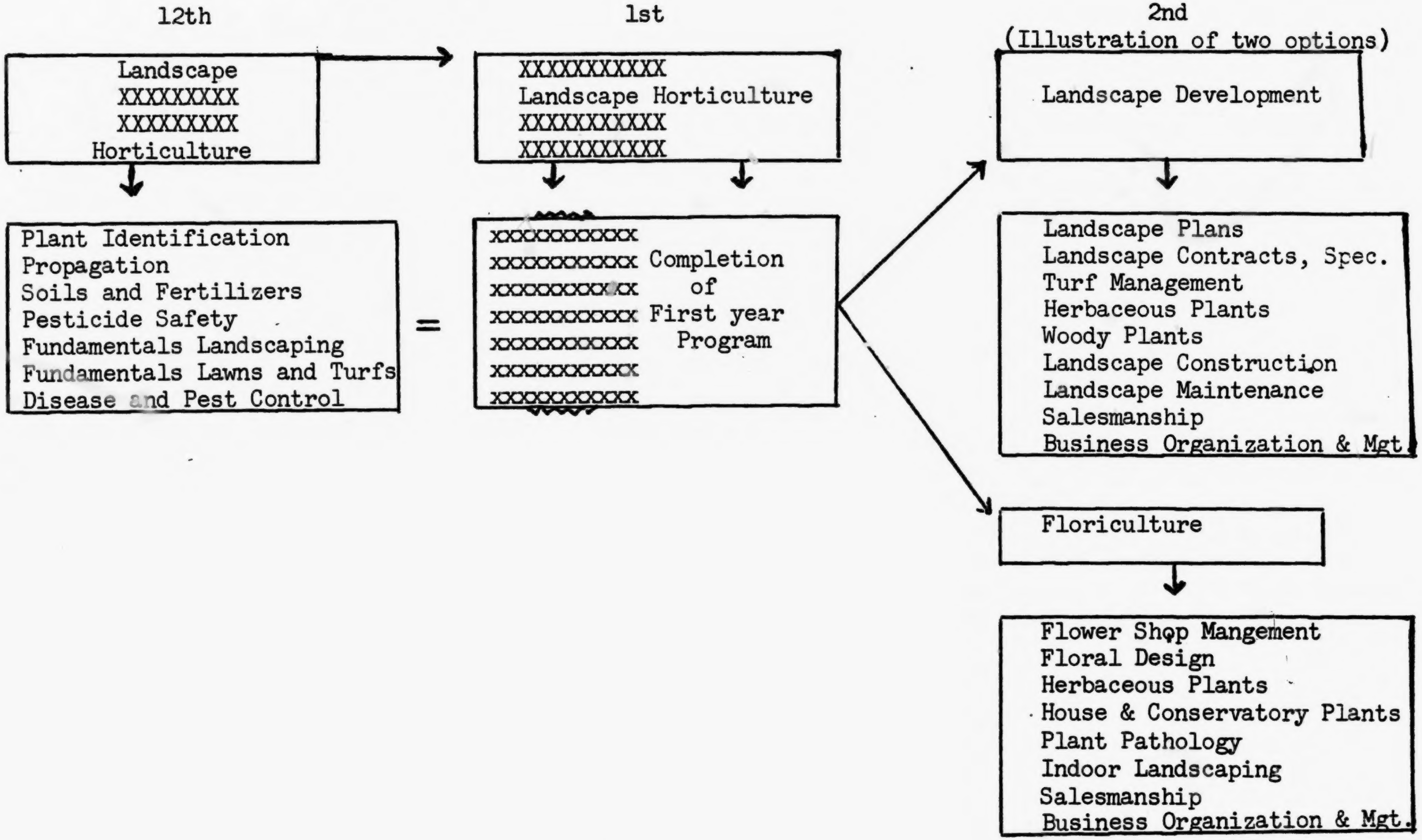
## Appendix F, Page 2

The implementation of an articulated comprehensive agricultural occupational program which is vital to the continued success of agriculture will require that education and agriculture make a concerted effort to open the lines of communication between all levels of education and all agricultural employment areas.

APPENDIX F, page 3

Table 16

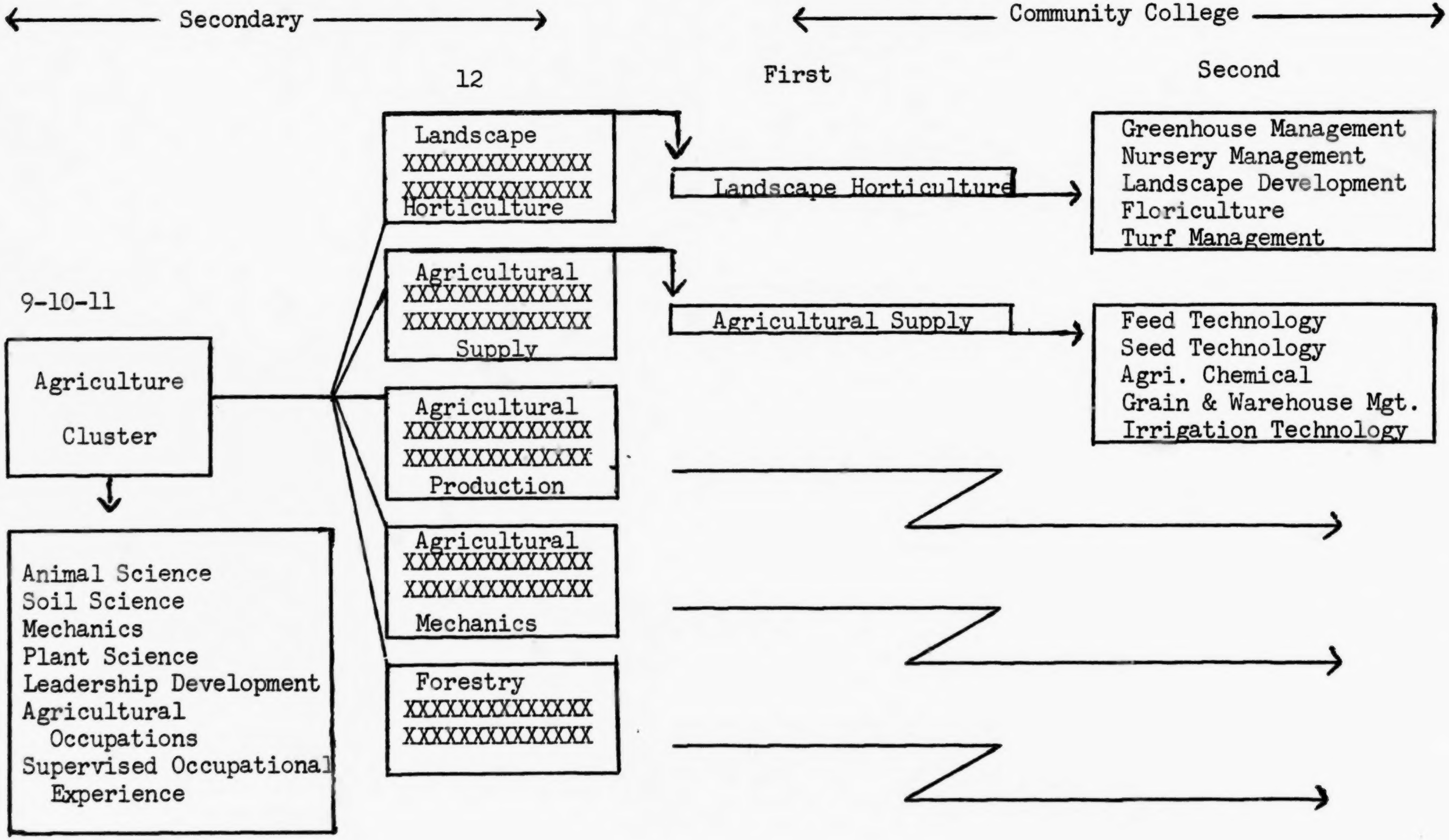
SCHEMATIC OF ARTICULATION PATTERN IN LANDSCAPE HORTICULTURE


12th
1st
2nd
(Illustration of two options)
Landscape
XXXXXXXXX
XXXXXXXXX
Horticulture
XXXXXXXXXXX
Landscape Horticulture
XXXXXXXXXXX
XXXXXXXXXXX
Landscape Development
Plant Identification
Propagation
Soils and Fertilizers
Pesticide Safety
Fundamentals Landscaping
Fundamentals Lawns and Turfs
Disease and Pest Control
=
xxxxxxxxxxxx
xxxxxxxxxxxx
xxxxxxxxxxxx
xxxxxxxxxxxx
xxxxxxxxxxxx
xxxxxxxxxxxx
xxxxxxxxxxxx
Completion
of
First year
Program
Landscape Plans
Landscape Contracts, Spec.
Turf Management
Herbaceous Plants
Woody Plants
Landscape Construction
Landscape Maintenance
Salesmanship
Business Organization & Mgt.
Floriculture
Flower Shop Mangement
Floral Design
Herbaceous Plants
House & Conservatory Plants
Plant Pathology
Indoor Landscaping
Salesmanship
Business Organization & Mgt.

APPENDIX F, page 4

Table 17

SCHEMATIC OF ARTICULATION PATTERN IN AGRICULTURE EDUCATION


Secondary
Community College
9-10-11
12
First
Second
Agriculture Cluster
Animal Science
Soil Science
Mechanics
Plant Science
Leadership Development
Agricultural Occupations
Supervised Occupational Experience
Landscape XXXXXXXXXXXXXX XXXXXXXXXXXXXX Horticulture
Agricultural XXXXXXXXXXXXXX XXXXXXXXXXXXXX Supply
Agricultural XXXXXXXXXXXXXX XXXXXXXXXXXXXX Production
Agricultural XXXXXXXXXXXXXX XXXXXXXXXXXXXX Mechanics
Forestry XXXXXXXXXXXXXX XXXXXXXXXXXXXX
Landscape Horticulture
Agricultural Supply
Greenhouse Management
Nursery Management
Landscape Development
Floriculture
Turf Management
Feed Technology
Seed Technology
Agri. Chemical
Grain & Warehouse Mgt.
Irrigation Technology

# APPENDIX G

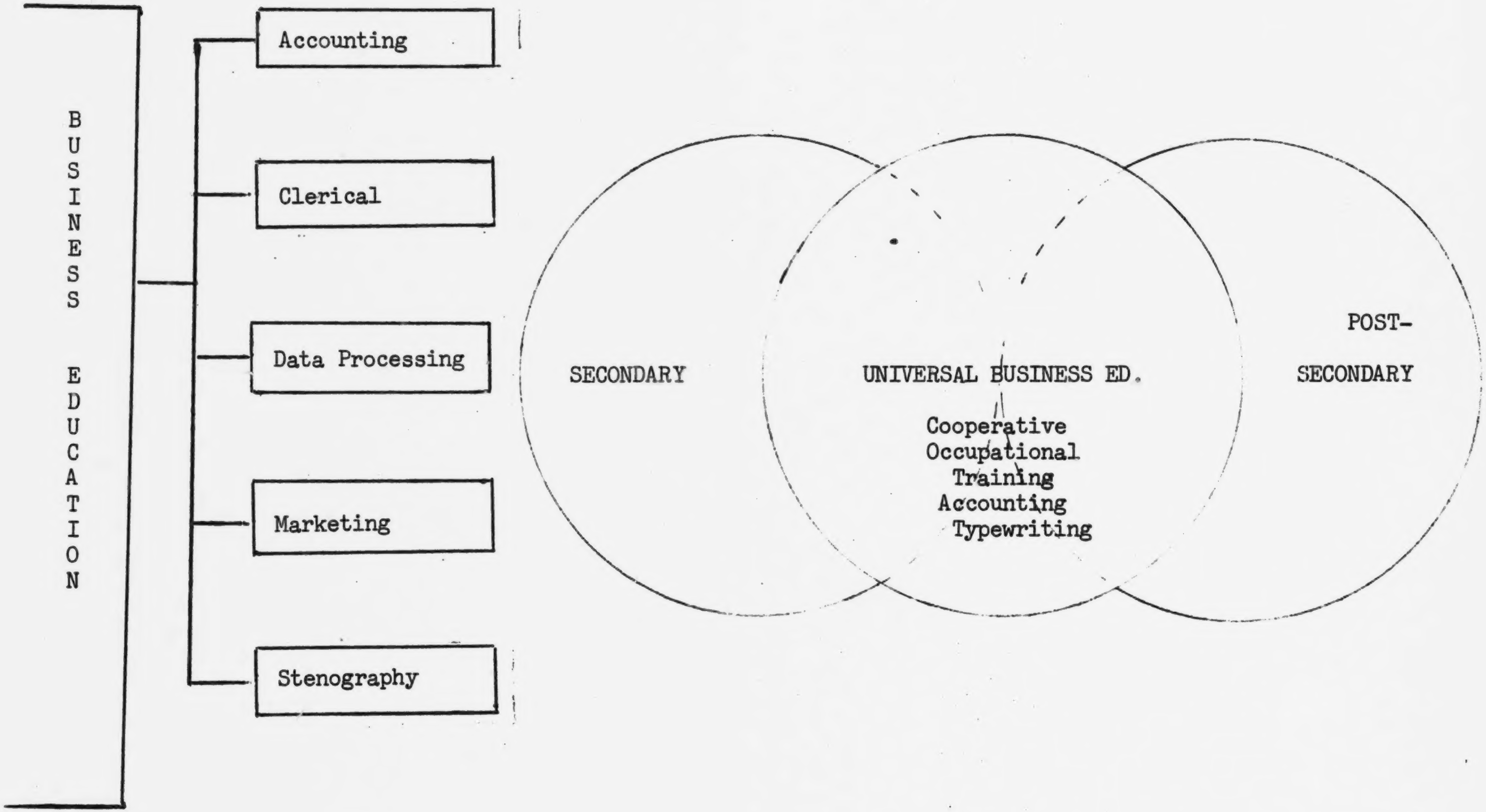
## SUGGESTED ARTICULATION PATTERNS FOR BUSINESS EDUCATION

The total Business Education Program offers five distinct occupational cluster curriculums: Accounting, Clerical, Data Processing, Marketing and Stenography. The three circles indicate the courses that are considered to be an essential part of any business curriculum. The core subjects recommended for the secondary level would appear in the left circle and the core subjects recommended for the post-secondary level would appear in the right circle. It will be noted that certain subject matter is included in both the secondary core and the post-secondary core. This is the universal business core and includes cooperative occupational training, accounting and typewriting.

APPENDIX G, page 2

Table 18

THE BUSINESS EDUCATION CORE CURRICULUM


BUSINESS EDUCATION
Accounting
Clerical
Data Processing
Marketing
Stenography
SECONDARY
UNIVERSAL BUSINESS ED.
Cooperative
Occupational
Training
Accounting
Typewriting
POST-
SECONDARY

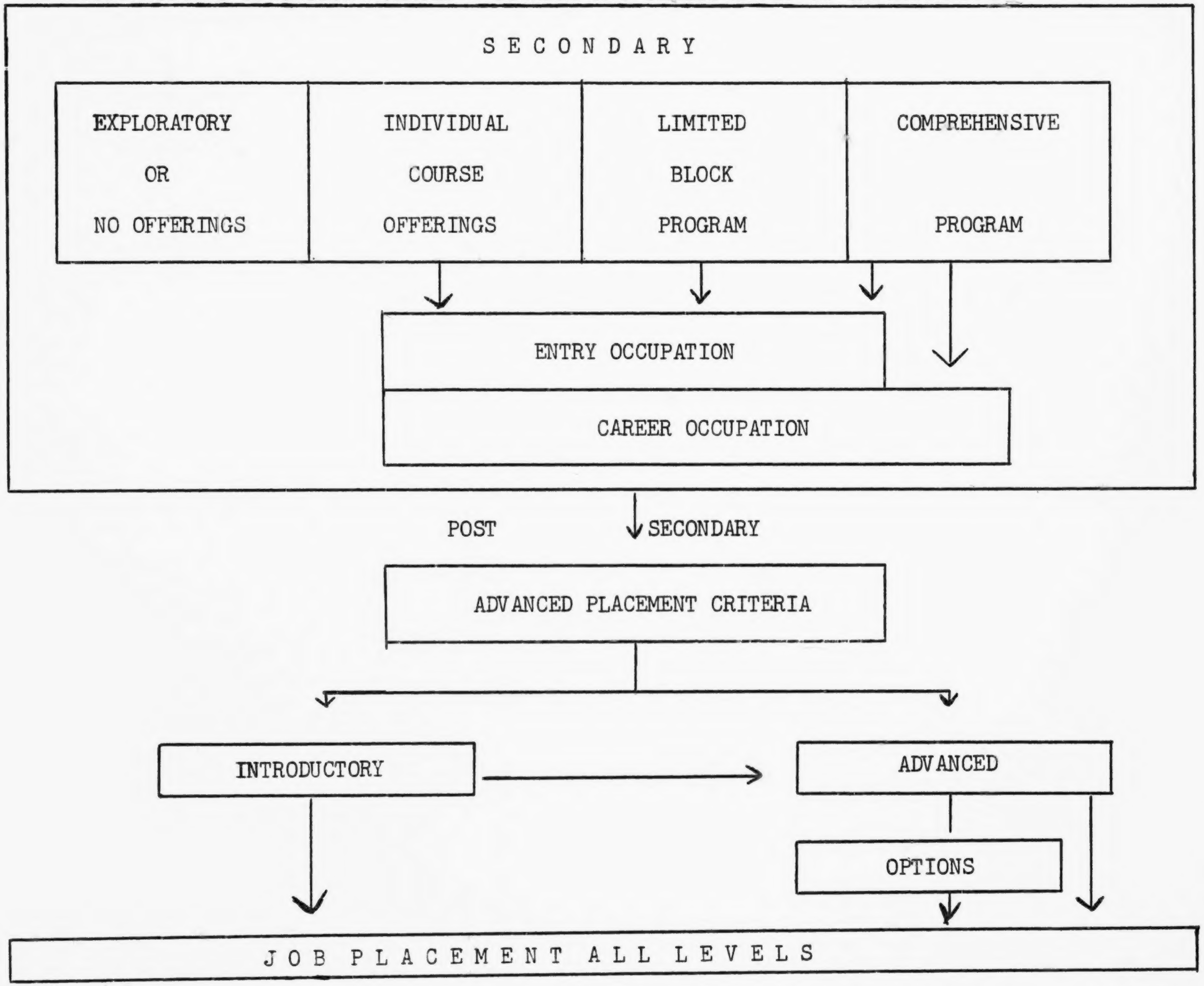
## APPENDIX G, page 3

## SUGGESTED ARICULATION PATTERNS FOR BUSINESS EDUCATION

As illustrated, some secondary programs offer only exploratory level courses that teach few employable skills. At the other extreme are schools with comprehensive programs that offer a much greater opportunity for occupational preparation. The student may choose to enter the labor market at any level, but if early job entry is bypassed for additional education, he must move to the post-secondary institution. At this point the advanced placement criteria are applied, and the student is allowed to take introductory or advanced courses depending upon the extent of knowledge or skill acquired at the secondary level.

APPENDIX G, page 4
Table 19

OCCUPATIONAL EDUCATION AVENUES A STUDENT MAY SELECT BASED ON OPPORTUNITIES


SECONDARY
EXPLORATORY OR NO OFFERINGS
INDIVIDUAL COURSE OFFERINGS
LIMITED BLOCK PROGRAM
COMPREHENSIVE PROGRAM
ENTRY OCCUPATION
CAREER OCCUPATION
POST SECONDARY
ADVANCED PLACEMENT CRITERIA
INTRODUCTORY
ADVANCED
OPTIONS
JOB PLACEMENT ALL LEVELS

## APPENDIX G, page 5

## SUGGESTED ARTICULATION PATTERNS FOR BUSINESS EDUCATION

The following illustrations show how a student who has taken a specialized curriculum can be given advanced placement on the post-secondary level in Business Education. If material is adequately mastered at the secondary level, the post-secondary institution should make it possible for the student to avoid repetition. The advanced placement criteria should be realistic and yet sufficiently demanding to provide the necessary information for proper student placement. A comprehensive high school program would allow a student to obtain the background necessary to bypass the fundamental courses on the post-secondary level. Some repetition may be useful to upgrade the student, but this should be held to a minimum.

## APPENDIX G, page 6
## Table 20

### ACCOUNTING CURRICULUM

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Secondary | ACCOUNTING I-IV<br>BUSINESS MATH<br>BUSINESS MACHINES<br>BUSINESS ECONOMICS<br>BUSINESS LAW<br>BUSINESS ORGANIZATION AND MNGMT.<br>COOP. OCCUPATIONAL TRAINING<br>DATA PROCESSING<br>GEN. BUSINESS | ACCOUNTING I-II<br>BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ORGANIZATION AND MNGMT.<br>GENERAL BUSINESS | ACCOUNTING I-II<br>GENERAL BUSINESS | NO COURSES |
| Post-Secondary | ACCOUNTING III-IV<br>BUSINESS STATISTICS<br>BUSINESS COMM.<br>COMPUTER APPN.<br>INTERMEDIATE<br>DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | BUSINESS ECONOMICS<br>ADVANCED MATH<br>INTRO. DATA PROC.<br>ACCOUNTING III-IV<br>BUSINESS STATISTICS<br>BUSINESS COMM.<br>COMPUTER APPN.<br><br>DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | INTRO. TO BUSINESS<br>OFFICE MANAGEMENT<br>BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ECONOMICS<br>ADVANCED MATH<br>INTRO. DATA PROC.<br>ACCOUNTING III-IV<br>BUSINESS STATISTICS<br>BUSINESS COMM.<br>COMPUTER APPN.<br><br>DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | INTRO TO BUSINESS<br>OFFICE MANAGEMENT<br>BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ECONOMICS<br>ADVANCED MATH<br>INTRO. DATA PROC.<br>ACCOUNTING I-IV<br>BUSINESS STATISTICS<br>BUSINESS COMM.<br>COMPUTER APPN.<br><br>DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING |

APPENDIX G, page 7

## Table 21

## OFFICE CLERICAL CURRICULUM

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Secondary | TYPING I-II<br>BUSINESS MACHINES<br>CLERICAL O.P.<br>BUSINESS LAW<br>COOP. OCCUPATIONAL TRAINING<br>RECORD KEEPING<br>BUSINESS ECONOMICS<br>PERSONAL SHORTHAND<br>GENERAL BUSINESS | TYPING I-II<br>CLERICAL O.P.<br>RECORD KEEPING<br>GENERAL BUSINESS | TYPING I-II | TYPING I |
| Post-Secondary | TYPING III-IV<br>ACCOUNTING I-II<br>INTRO. TO BUSINESS<br>PERSONAL DEVELOP.<br>OFFICE MANAGEMENT<br>BUSINESS COMM.<br>COOPERATIVE OCCUPATIONAL TRAINING | BRIEFHAND<br>BUSINESS MACHINES<br>BUSINESS LAW<br>TYPING III-IV<br>ACCOUNTING I-II<br>INTRO. TO BUSINESS<br>PERSONAL DEVELOP.<br>OFFICE MANAGEMENT<br>BUSINESS COMM.<br>COOPERATIVE OCCUPATIONAL TRAINING | INTRO. TO BUSINESS<br>CLERICAL O.P.<br>BRIEFHAND<br>BUSINESS MACHINES<br>BUSINESS LAW<br>TYPING III-IV<br>ACCOUNTING I-II<br>INTRO. TO BUSINESS<br>PERSONAL DEVELOP.<br>OFFICE MANAGEMENT<br>BUSINESS COMM.<br>COOPERATIVE OCCUPATIONAL TRAINING | INTRO. TO BUSINESS<br>CLERICAL O.P.<br>BRIEFHAND<br>BUSINESS MACHINES<br>BUSINESS LAW<br>TYPING III-IV<br>ACCOUNTING I-II<br>INTRO. TO BUSINESS<br>PERSONAL DEVELOP.<br>OFFICE MANAGEMENT<br>BUSINESS COMM.<br>COOPERATIVE OCCUPATIONAL TRAINING |

## APPENDIX G, page 8

Table 22

DATA PROCESSING CURRICULUM

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Secondary | ACCOUNTING I-IV<br>TYPEWRITING<br>GENERAL BUSINESS<br>COOP. OCCUPATIONAL TRAINING<br>BUS. ORG. AND MNGMT.<br>INTRO. DATA PROC.<br>BUSINESS COMM.<br>BUSINESS MATH.<br>BUSINESS LAW | ACCOUNTING I-II<br>TYPEWRITING<br>GENERAL BUSINESS<br>COOP. OCCUPATIONAL TRAINING<br>BUS. ORG. AND MNGMT.<br>BUS. MATH | ACCOUNTING I-II<br>TYPEWRITING<br>GENERAL BUSINESS | TYPEWRITING<br>GEN. BUSINESS |
| Post-Secondary | ACCOUNTING III-IV<br>OFFICE MNGMT.<br>TECHNICAL MATH<br>ECONOMICS<br>COOPERATIVE OCCUPATIONAL TRAINING<br>*DATA PROCESSING CORE | INTRO. TO DATA PROC.<br>BUSINESS COMM.<br>BUSINESS LAW<br>ACCOUNTING II-IV<br>OFFICE MNGMT.<br>TECHNICAL MATH<br>ECONOMICS<br>COOPERATIVE OCCUPATIONAL TRAINING<br>*DATA PROCESSING CORE | INTRO. TO BUSINESS<br>BUS. ORG. AND MNGMT.<br>BUSINESS MATH<br>INTRO. TO DATA PROC.<br>BUSINESS COMM.<br>BUSINESS LAW<br>ACCOUNTING II-IV<br>OFFICE MNGMT.<br>TECHNICAL MATH<br>ECONOMICS<br>COOPERATIVE OCCUPATIONAL TRAINING<br>*DATA PROCESSING CORE | INTRO. TO BUSINESS<br>BUS. ORG. AND MNGMT.<br>BUSINESS MATH<br>INTRO. TO DATA PROC.<br>BUSINESS COMM.<br>BUSINESS LAW<br>ACCOUNTING I-IV<br>OFFICE MNGMT.<br>TECHNICAL MATH<br>ECONOMICS<br>COOPERATIVE OCCUPATIONAL TRAINING<br>*DATA PROCESSING CORE |

APPENDIX G, page 9

Table 23

MARKETING CURRICULUM

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Secondary | MARKETING I-IV<br>MARKETING LAB I-II<br>COOPERATIVE OCCUPATIONAL TRAINING<br>BUSINESS MATH<br>BUSINESS COMM.<br>GENERAL BUSINESS<br>TYPEWRITING<br>BUS. ORG. AND MNGNT.<br>BUSINESS LAW | MARKETING I-II<br>COOP. OCCUPATIONAL TRAINING<br>BUSINESS MATH<br>BUSINESS ORG. AND MANAGEMENT<br>TYPEWRITING | SALESMANSHIP<br>TYPEWRITING<br>BUSINESS MATH | TYPEWRITING |
| Post-Secondary | MARKETING MGMT.<br>ACCOUNTING PRIN.<br>FINANCE<br>ECONOMICS<br>INTRO. DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | ADVERTISING FUND<br>BUSINESS COMM.<br>BUSINESS LAW<br>PRIN. OF MARKETING II<br>MARKETING MGMT.<br>ACCOUNTING PRIN.<br>FINANCE<br>ECONOMICS<br>INTRO. DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | INTRO. TO BUSINESS<br>ADVERTISING FUND<br>BUSINESS COMM.<br>BUSINESS LAW<br>PRIN. OF MARKETING I-II<br>MARKETING MGMT.<br>ACCOUNTING PRIN.<br>FINANCE<br>ECONOMICS<br>INTRO. DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | PRIN. OF SALESMANSHIP<br>INTRO. TO BUSINESS<br>ADVERTISING FUND<br>BUSINESS COMM.<br>BUSINESS LAW<br>PRIN. OF MARKETING II<br>MARKETING MGMT.<br>ACCOUNTING PRIN.<br>FINANCE<br>ECONOMICS<br>INTRO. DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING |

## APPENDIX G, page 10

Table 24

SECRETARIAL CURRICULUM

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | COMPREHENSIVE | LIMITED BLOCK | INDIVIDUAL COURSES | EXPLORATORY |
| Secondary | TYPING I-II<br>SHORTHAND I-II<br>ACCOUNTING I-II<br>SECRETARIAL O.P.<br>BUSINESS MACHINES<br>COOPERATIVE OCCUPATIONAL TRAINING<br>GENERAL BUSINESS<br>BUSINESS ECONOMICS<br>BUSINESS LAW | TYPING I-II<br>SHORTHAND I-II<br>ACCOUNTING I<br>SECRETARIAL O.P.<br>GENERAL BUSINESS | TYPING I-II<br>SHORTHAND I-II | TYPING I<br>GENERAL BUSINESS |
| Post-Secondary | TYPING III-IV<br>SHORTHAND III-IV<br>ACCOUNTING II<br>PERSONAL DEVELOP.<br>COOPERATIVE OCCUPATIONAL TRAINING | BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ECONOMICS<br>TYPING III-IV<br>SHORTHAND III-IV<br>ACCOUNTING II<br>PERSONAL DEVELOP.<br>COOPERATIVE OCCUPATIONAL TRAINING | INTRO. TO BUSINESS<br>SECRETARIAL O.P.<br>BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ECONOMICS<br>TYPING III-IV<br>SHORTHAND III-IV<br>ACCOUNTING I-II<br>PERSONAL DEVELOP.<br>COOPERATIVE OCCUPATIONAL TRAINING | TYPING II<br>INTRO. TO BUSINESS<br>SECRETARIAL O.P.<br>BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ECONOMICS<br>TYPING III-IV<br>SHORTHAND I-IV<br>ACCOUNTING I-II<br>PERSONAL DEVELOP.<br>COOPERATIVE OCCUPATIONAL TRAINING |

## APPENDIX G, page 9

## Table 23

## MARKETING CURRICULUM

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Secondary | MARKETING I-IV<br>MARKETING LAB I-II<br>COOPERATIVE OCCUPATIONAL TRAINING<br>BUSINESS MATH<br>BUSINESS COMM.<br>GENERAL BUSINESS<br>TYPEWRITING<br>BUS. ORG. AND MNGNT.<br>BUSINESS LAW | MARKETING I-II<br>COOP. OCCUPATIONAL TRAINING<br>BUSINESS MATH<br>BUSINESS ORG. AND MANAGEMENT<br>TYPEWRITING | SALESMANSHIP<br>TYPEWRITING<br>BUSINESS MATH | TYPEWRITING |
| Post-Secondary | MARKETING MGMT.<br>ACCOUNTING PRIN.<br>FINANCE<br>ECONOMICS<br>INTRO. DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | ADVERTISING FUND<br>BUSINESS COMM.<br>BUSINESS LAW<br>PRIN. OF MARKETING II<br>MARKETING MGMT.<br>ACCOUNTING PRIN.<br>FINANCE<br>ECONOMICS<br>INTRO. DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | INTRO. TO BUSINESS<br>ADVERTISING FUND<br>BUSINESS COMM.<br>BUSINESS LAW<br>PRIN. OF MARKETING I-II<br>MARKETING MGMT.<br>ACCOUNTING PRIN.<br>FINANCE<br>ECONOMICS<br>INTRO. DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING | PRIN. OF SALESMANSHIP<br>INTRO. TO BUSINESS<br>ADVERTISING FUND<br>BUSINESS COMM.<br>BUSINESS LAW<br>PRIN. OF MARKETING II<br>MARKETING MGMT.<br>ACCOUNTING PRIN.<br>FINANCE<br>ECONOMICS<br>INTRO. DATA PROCESSING<br>COOPERATIVE OCCUPATIONAL TRAINING |

## APPENDIX G, page 10

## Table 24

## SECRETARIAL CURRICULUM

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | COMPREHENSIVE | LIMITED BLOCK | INDIVIDUAL COURSES | EXPLORATORY |
| Secondary | TYPING I-II<br>SHORTHAND I-II<br>ACCOUNTING I-II<br>SECRETARIAL O.P.<br>BUSINESS MACHINES<br>COOPERATIVE OCCUPATIONAL TRAINING<br>GENERAL BUSINESS<br>BUSINESS ECONOMICS<br>BUSINESS LAW | TYPING I-II<br>SHORTHAND I-II<br>ACCOUNTING I<br>SECRETARIAL O.P.<br>GENERAL BUSINESS | TYPING I-II<br>SHORTHAND I-II | TYPING I<br>GENERAL BUSINESS |
| Post-Secondary | TYPING III-IV<br>SHORTHAND III-IV<br>ACCOUNTING II<br>PERSONAL DEVELOP.<br>COOPERATIVE OCCUPATIONAL TRAINING | BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ECONOMICS<br>TYPING III-IV<br>SHORTHAND III-IV<br>ACCOUNTING II<br>PERSONAL DEVELOP.<br>COOPERATIVE OCCUPATIONAL TRAINING | INTRO. TO BUSINESS<br>SECRETARIAL O.P.<br>BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ECONOMICS<br>TYPING III-IV<br>SHORTHAND III-IV<br>ACCOUNTING I-II<br>PERSONAL DEVELOP.<br>COOPERATIVE OCCUPATIONAL TRAINING | TYPING II<br>INTRO. TO BUSINESS<br>SECRETARIAL O.P.<br>BUSINESS MACHINES<br>BUSINESS LAW<br>BUSINESS ECONOMICS<br>TYPING III-IV<br>SHORTHAND I-IV<br>ACCOUNTING I-II<br>PERSONAL DEVELOP.<br>COOPERATIVE OCCUPATIONAL TRAINING |

## APPENDIX G, page 11

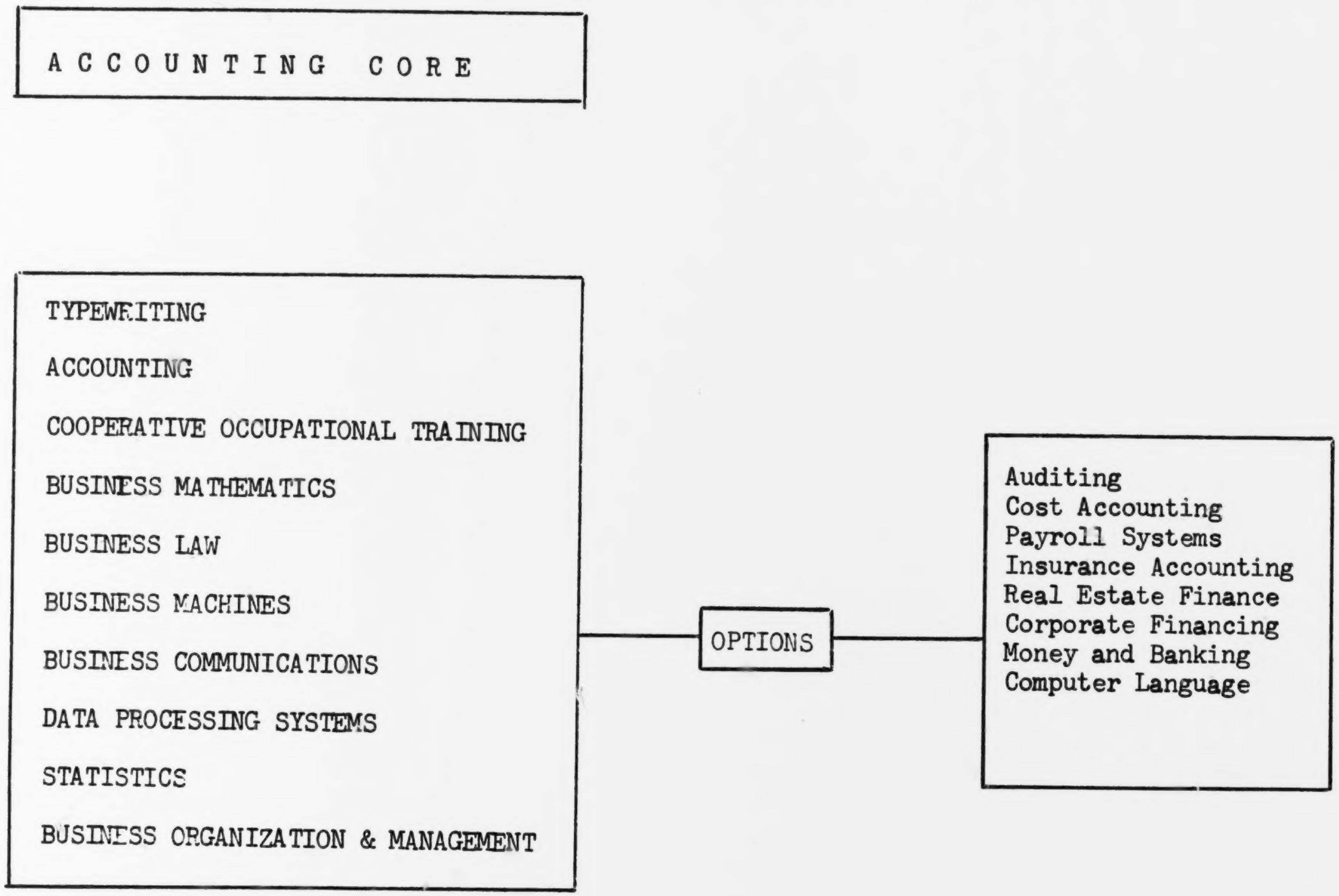
## SUGGESTED ARTICULATION PATTERNS FOR BUSINESS EDUCATION

The following illustrations list some of the options which are available after completing the core curriculums. The accounting and clerical cores are expanded by course options, while the data processing, marketing and secretarial cores are reinforced by individual specialized curriculum options.

APPENDIX G, page 12

Table 25

POST-SECONDARY
ACCOUNTING ARTICULATION



ACCOUNTING CORE

TYPEWRITING

ACCOUNTING

COOPERATIVE OCCUPATIONAL TRAINING

BUSINESS MATHEMATICS

BUSINESS LAW

BUSINESS MACHINES

BUSINESS COMMUNICATIONS

DATA PROCESSING SYSTEMS

STATISTICS

BUSINESS ORGANIZATION & MANAGEMENT

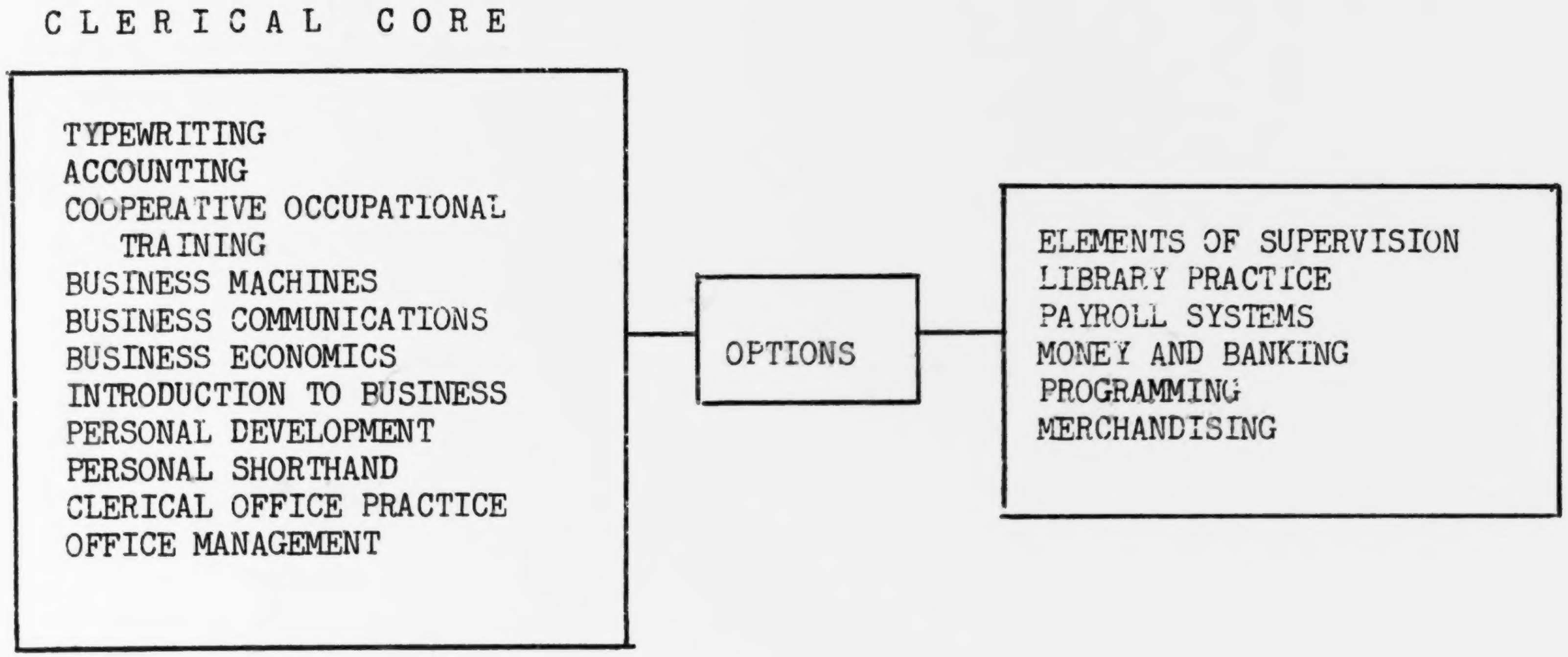
OPTIONS

Auditing
Cost Accounting
Payroll Systems
Insurance Accounting
Real Estate Finance
Corporate Financing
Money and Banking
Computer Language

APPENDIX G, page 13

Table 26

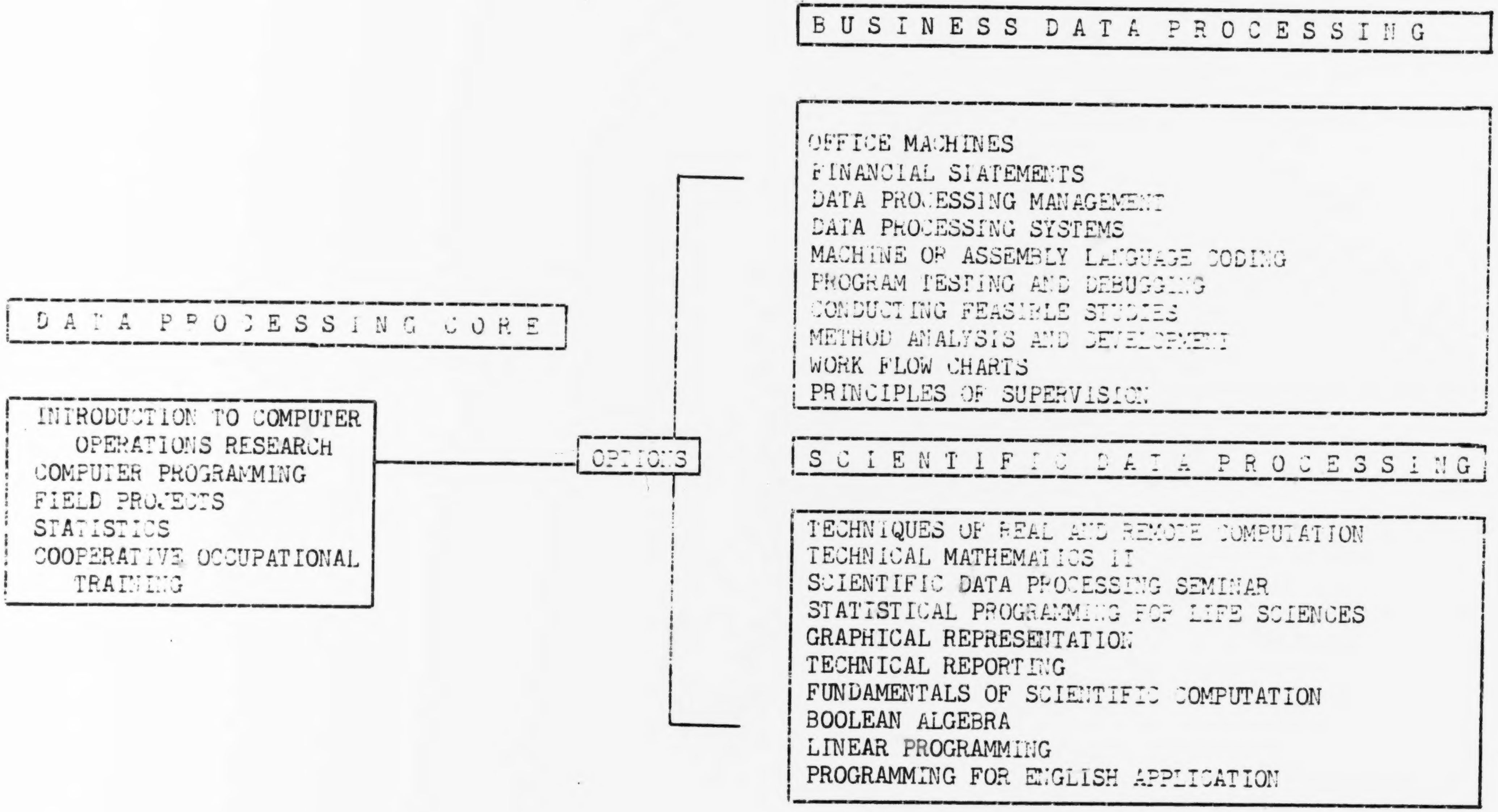
COMMUNITY COLLEGE
OFFICE CLERICAL ARTICULATION


CLERICAL CORE
TYPEWRITING
ACCOUNTING
COOPERATIVE OCCUPATIONAL TRAINING
BUSINESS MACHINES
BUSINESS COMMUNICATIONS
BUSINESS ECONOMICS
INTRODUCTION TO BUSINESS
PERSONAL DEVELOPMENT
PERSONAL SHORTHAND
CLERICAL OFFICE PRACTICE
OFFICE MANAGEMENT
OPTIONS
ELEMENTS OF SUPERVISION
LIBRARY PRACTICE
PAYROLL SYSTEMS
MONEY AND BANKING
PROGRAMMING
MERCHANDISING

APPENDIX G, page 14

Table 27

POST-SECONDARY
DATA PROCESSING ARTICULATION



**DATA PROCESSING CORE**

- INTRODUCTION TO COMPUTER OPERATIONS RESEARCH
- COMPUTER PROGRAMMING
- FIELD PROJECTS
- STATISTICS
- COOPERATIVE OCCUPATIONAL TRAINING

**OPTIONS**

**BUSINESS DATA PROCESSING**

- OFFICE MACHINES
- FINANCIAL STATEMENTS
- DATA PROCESSING MANAGEMENT
- DATA PROCESSING SYSTEMS
- MACHINE OR ASSEMBLY LANGUAGE CODING
- PROGRAM TESTING AND DEBUGGING
- CONDUCTING FEASIBLE STUDIES
- METHOD ANALYSIS AND DEVELOPMENT
- WORK FLOW CHARTS
- PRINCIPLES OF SUPERVISION

**SCIENTIFIC DATA PROCESSING**

- TECHNIQUES OF REAL AND REMOTE COMPUTATION
- TECHNICAL MATHEMATICS II
- SCIENTIFIC DATA PROCESSING SEMINAR
- STATISTICAL PROGRAMMING FOR LIFE SCIENCES
- GRAPHICAL REPRESENTATION
- TECHNICAL REPORTING
- FUNDAMENTALS OF SCIENTIFIC COMPUTATION
- BOOLEAN ALGEBRA
- LINEAR PROGRAMMING
- PROGRAMMING FOR ENGLISH APPLICATION

APPENDIX G, page 15

Table 28

## POST-SECONDARY MARKETING PROGRAM ARTICULATION

### CAREER MARKETING CORE

INTRO TO BUSINESS
TYPEWRITING
BUSINESS MATH
BUSINESS LAW
BUS. COMMUNICATIONS
PRIN. OF SALESMANSHIP
PRIN. OF MARKETING
COOPERATIVE OCCUPATIONAL
TRAINING

### MIDMANAGEMENT MARKETING

ECONOMICS
FINANCE
MARKETING MANAGEMENT
ACCOUNTING PRINCIPLES
PRIN. OF WHOLESALING
INTRO. DATA PROCESSING
COOPERATIVE OCCUPATIONAL
TRAINING

### OPTIONS

REAL ESTATE
ADVERTISING
MERCHANDISING
BUILDING SUPPLY
INSURANCE
EXPORT-IMPORT MANAGEMENT
WHOLESALING TRANSPORTATION
HOTEL-MOTEL MANAGEMENT

### REAL ESTATE OPTIONS

REAL ESTATE PRINCIPLES
REAL ESTATE PRACTICE
REAL ESTATE LAW
REAL ESTATE APPRAISAL
REAL ESTATE FINANCE
REAL ESTATE TRENDS AND
DEVELOPMENT
ELEMENTS OF DESIGN AND
CONSTRUCTION
COMMERCIAL MID INDIVIDUAL
PROPERTY
SUBDIVIDING AND COM. PLAN
FUND. OF EXCHANGING

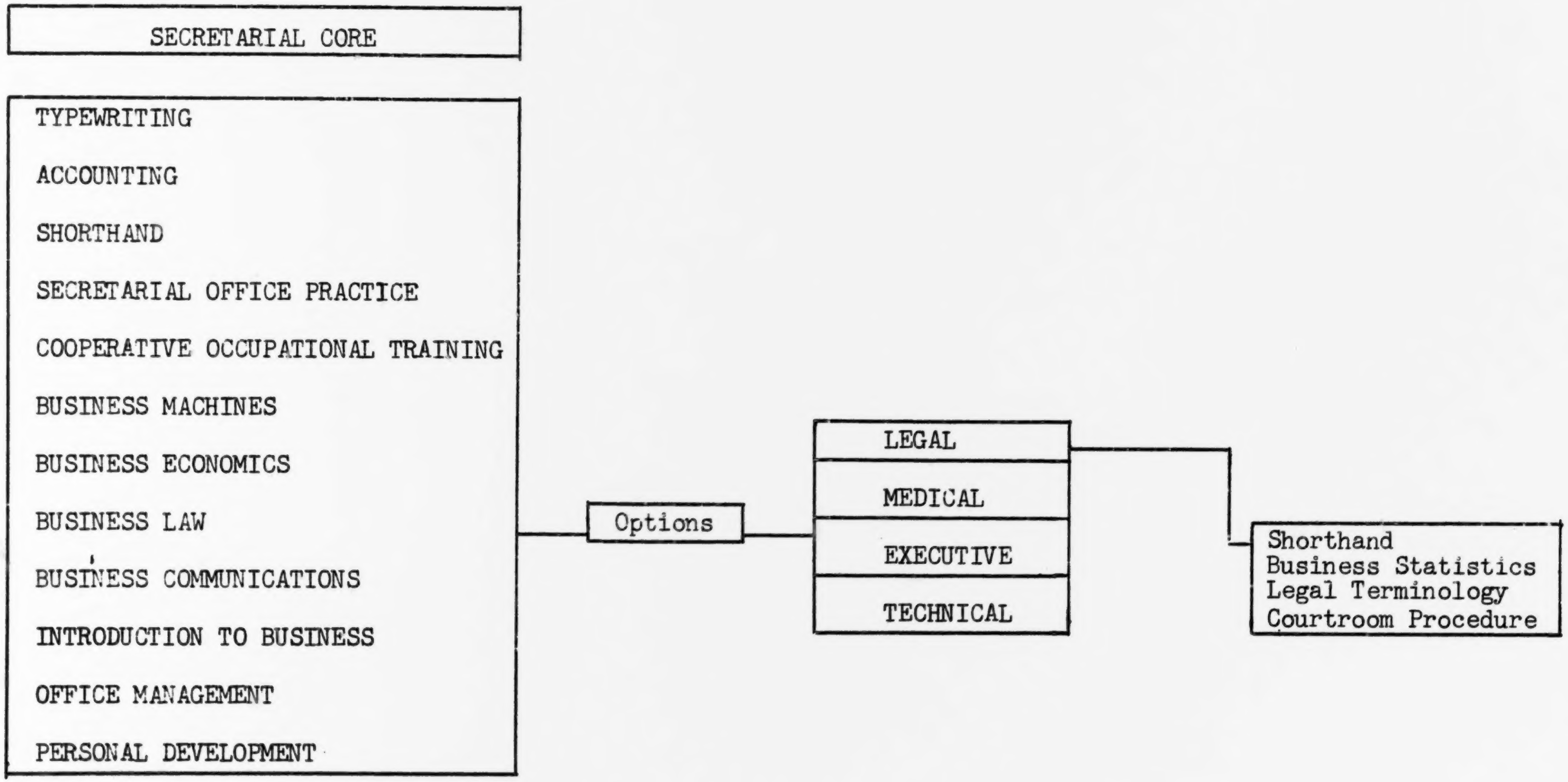
### HOTEL-MOTEL OPTIONS

FRONT OFFICE PROCEDURES
HOTEL-MOTEL ACCOUNTING
MAINTENANCE AND ENGINEER
FOOD AND BEVERAGE CONTROLS
SUPERVISORY HOUSEKEEPING
HOTEL-MOTEL LAW
HOTEL-MOTEL ORGANIZATION AND
ADMINISTRATION
MOTEL-MOTOR HOTEL
MANAGEMENT AND OPERATION
HOTEL-MOTEL SALES PROMOTION

APPENDIX G, page 16

Table 29

POST-SECONDARY
SECRETARIAL ARTICULATION


SECRETARIAL CORE
TYPEWRITING
ACCOUNTING
SHORTHAND
SECRETARIAL OFFICE PRACTICE
COOPERATIVE OCCUPATIONAL TRAINING
BUSINESS MACHINES
BUSINESS ECONOMICS
BUSINESS LAW
BUSINESS COMMUNICATIONS
INTRODUCTION TO BUSINESS
OFFICE MANAGEMENT
PERSONAL DEVELOPMENT
Options
LEGAL
MEDICAL
EXECUTIVE
TECHNICAL
Shorthand
Business Statistics
Legal Terminology
Courtroom Procedure

## APPENDIX H

## SUGGESTED ARTICULATION PATTERNS FOR INDUSTRIAL EDUCATION

The relationship of industrial arts education to occupational trade and industrial education appears to be closer at the secondary level. Several reasons may account for this:

1. The same facility often serves both.
2. The same teacher may, if certified, teach both programs.
3. The establishment of the concept of clusters or families of occupations rather than training for specific trades resembles the general shop programs of industrial arts.
4. Many industrial occupational programs based on the cluster approach have had their beginnings in existing industrial arts facilities.
5. Well-taught industrial arts courses provide the related technical and occupational information necessary for the transition to the more technically based occupational programs.
6. Grant Venn has stated, "The line between the teaching of industrial arts and the teaching of industrial skills is a thin one . . ."[14]

At this point, it appears appropriate to include a statement prepared by a joint committee of Industrial Arts and Trade and Industrial/Technical Representatives appointed by the Board of Directors of the American Vocational Association. The committee agreed that:

1. Industrial Education is a generic term which broadly defines that part of the total educational program which includes instruction in industrial arts education and trade and industrial/technical education.
2. Trade and Industrial/Technical Education is a program of vocational education and training for gainful employment in trades, service, and industrial/technical occupations.
3. Industrial Arts is a program of education relating to the broad study of selected industries.

Following is a comparative listing of Industrial Arts Education and Trade and Industrial/Technical Education elements:

## APPENDIX H, page 2

| Industrial Arts Education | Trade and Industrial/Technical Education |
|---|---|
| **A. CURRICULUM** | |
| 1. Content is derived from a broad study of selected industries, including the use of tools, materials, and processes. | 1. The content is determined by an analysis of the various job titles in an occupational field for which training is being given, such as the machine industries occupations. |
| 2. It provides for the development of conceptionalized skills and understandings. | 2. The curriculum is developed, reviewed, and updated with the assistance of management and labor representatives from industry. |
| 3. It provides opportunity to apply basic principles of the man-made world as a designer, planner, and user. | 3. The content is continuously changing and is updated to reflect technological changes in each occupational field. |
| 4. Programs are kept current with technological advances and changes in educational media. | 4. Instructional materials include recent industrial publications and modern industrial devices and techniques as an integral part of the instructional program. |

| | |
|---|---|
| 5. Curriculum includes instructional programs which are:<br>a. Designed to acquaint student with the general functions and procedures of industry, including guidance for the broad spectrum of industrial occupations.<br>b. Designed to provide a study of the interrlationships of industrial activities leading to the production and manufacturing of industrial products.<br>c. Designed to provide an opportunity for a student to contrate in a broad field such as electricity, electronics, drafting, graphic arts, automotive and power, and materials and processes.<br>d. Designed to foster creative abilities and interests in the use of the tools and materials of industry. | 5. The curriculum provides in-depth learning experiences and techniques which duplicate those found in industrial/technical employment.<br>6. The time schedule and the level and amount of instruction must be adequate to develop necessary skills and related technical understanding essential for successful entry into and progress in a trade, service, or an industrial or technical occupation.<br>7. Pre-employment programs are provided immediately preceding employment in order to be most effective.<br>8. Programs are designed to meet the full spectrum of needs from the single purpose operatives to the highly skilled trade and industrial/technical craftsman.<br>9. Pre-employment education and training is usually provided from grades 9 through 14.<br>10. Programs provide open-ended curriculum to permit vertical articulation from secondary to post-secondary levels.<br>11. Programs are provided around-the clock and throughout the year. Such programs include pre-apprentice and apprentice training, retraining, occupational extension, foremanship, and supervisory and management development training. |

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B. TYPES OF SCHOOLS

| | |
|---|---|
| 1. Industrial arts programs are offered in elementary schools, junior high and senior high schools, post-secondary schools, colleges and universities. | 1. Instructional programs in trade and industrial/technical education are offered at secondary and post-secondary levels. These are provided in a broad range of institutions, including industrial plants, departments in comprehensive high schools, vocational schools, departments in junior and community colleges, and in programs of less than baccalaureate level in some four-year institutions. |

C. TEACHERS

| | |
|---|---|
| 1. A baccalaureate degree program with an approved major in industrial arts education is required for initial entry into the profession. The curriculum is taught and approved completely by industrial arts teacher educators. | 1. The prerequisite occupational proficiency is developed under actual wage-earning situation in a trade, service, industrial or technical occupation. |
| 2. The candidate must have completed a program of professional preparation, including a supervised internship or student teaching experience. | 2. High school graduation or the equivalent is required as the minimal education for acceptance into trade and industrial/technical teacher education. |
| 3. Work experience is desirable as a basis for a broad understanding of industry and the world of work. | 3. Potential teachers recruited from industry must possess personal, physical, and moral qualities essential for the development of a successful teacher. |
| | 4. Quality vocational industrial-technical teacher education programs are required. Such programs are planned, directed and supervised by qualified vocational industrial teacher educators. |

## D. INSTRUCTIONAL FACILITIES

| | |
|---|---|
| 1. These must meet standards set by regional accreditation associations and individual state requirements. | 1. The plans for instructional shops, laboratories, and related instructional classroom facilities are based upon occupational analyses and recommendations of vocational industrial advisory committees. The nature of the instructionsl plant and the variety of equipment are comparable, where practical, to those found in industry. |
| 2. They must include the tools, equipment, materials, and space necessary to implement the proposed curriculum. | 2. Instructional supplies and materials are comparable to those found in industry and are available in sufficient quantity to develop adequate marketable skills. |

## E. STUDENTS

| | |
|---|---|
| 1. All students K through 12, post-secondary, college and adults. regardless of their occupational goals, could benefit from experiences offered in industrial arts. | 1. Programs are provided for youths and adults whose goal is entry into, retraining for, or upgrading in trade and industrial/technical occupations. |

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| | |
|---|---|
| 2. Programs are planned for a large variety of student objectives such as:<br>a. Pre-collegiate programs providing industrial information preparatory to professional study.<br>b. General education programs providing a broad understanding and consumer experience in industrial subjects.<br>c. Elementary programs providing occupational and industrial guidance and introductory experiences in industrial arts.<br>d. Special programs for students having mental and physical handicaps, but still capable of profiting from special courses planned for their abilities. | 2. Students are selected in terms of potential employability.<br>3. The minimum entry age into the program is determined by the employability age at the completion of the education and training program.<br>4. Students may receive:<br>a. High school diploma endorsed in an occupational field upon completion of secondary programs.<br>b. A certificate or associate degree with occupational endorsement for post-secondary programs.<br>c. And a certificate of occupational competency for undgrade programs.<br>5. Persons with special occupational needs are served in vocational programs. |

## F. GUIDANCE AND COUNSELING

| | |
|---|---|
| 1. Industrial arts educators provide the student with basic experiences which help him make his occupational, education, or professional choice. | 1. Organized programs of vocational guidance provide for recruiting, testing, and selecting students.<br>2. Vocational counseling services are provided for in-school and out-of-school youth and adults as an integral part of preparatory, retraining or upgrading programs in trade and industrial/technical education.<br>3. Job placement and trainee follow-up are an integral part of the program. |